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January 2024

# **amfori BEPI References**

## amfori BEPI References

amfori BEPI is framed taking into consideration international treaties and conventions that are The United Nations (UN) Universal Declaration of Human Rights (1948); the International Labour Organisation's (ILO) Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (1977); the UN Guiding Principles on Business and Human Rights (UNGP) (2011) and the Guidelines for Multinational Enterprises developed by the Organisation for Economic Co-operation and Development (OECD) (2011) all represent the most widely accepted international frameworks for responsible business conduct and are underlying base for human rights and environmental due diligence. Environmental performance in supply chains is guided by different<sup>21</sup> relevant global treaties on environmental protection, and specifically The Montreal Protocol<sup>3</sup> the Basel Convention<sup>4</sup>, the Convention on Biological Diversity<sup>5</sup>, the Kyoto Protocol<sup>6</sup>, the Stockholm Convention<sup>7</sup>, the Minamata Convention<sup>8</sup> and the Paris Agreement<sup>9</sup> It is also strongly directed by national regulations for environmental protection

### I. International Conventions

- Fundamental Conventions

1987, The Montreal Protocol - <https://treaties.un.org/doc/publication/unts/volume%201522/volume-1522-i-26369-english.pdf>

1989, The Basel Convention - <https://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-e.pdf>

1992, The Convention on Biological Diversity, <https://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-e.pdf>

1998, Kyoto protocol to the United Nations framework convention on climate change - <https://unfccc.int/resource/docs/convkp/kpeng.pdf>

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<sup>1</sup> [https://euc-word-edit.officeapps.live.com/we/worDEDitorframe.aspx?ui=en-US&rs=en-US&wopisrc=https://foreigntradeassociation.sharepoint.com/sites/GREENTeamAMFORI/\\_vti\\_bin/wopi.ashx/files/ed0cbc89ba6d48f78853932fde2e2dd8&wdlor=cE9987FFB-A173-480A-8565-C1A9F33AD677&wdenableroaming=1&mssc=1&hid=6A8816D1-71CD-44DE-93A7-A7A69F7FCD1A&wdorigin=Outlook-Body.Sharing.ServerTransfer&wdhostclicktime=1680261799020&jsapi=1&jsapiver=v1&newsession=1&corrid=29e9e176-cb89-454a-b2ae-16bc236dfb53&usid=29e9e176-cb89-454a-b2ae-16bc236dfb53&sftc=1&cac=1&mtf=1&sfp=1&instantedit=1&wopicomplete=1&wdredirectionreason=Unified\\_SingleFlush&rct=Normal&ctp=LeastProtected](https://euc-word-edit.officeapps.live.com/we/worDEDitorframe.aspx?ui=en-US&rs=en-US&wopisrc=https://foreigntradeassociation.sharepoint.com/sites/GREENTeamAMFORI/_vti_bin/wopi.ashx/files/ed0cbc89ba6d48f78853932fde2e2dd8&wdlor=cE9987FFB-A173-480A-8565-C1A9F33AD677&wdenableroaming=1&mssc=1&hid=6A8816D1-71CD-44DE-93A7-A7A69F7FCD1A&wdorigin=Outlook-Body.Sharing.ServerTransfer&wdhostclicktime=1680261799020&jsapi=1&jsapiver=v1&newsession=1&corrid=29e9e176-cb89-454a-b2ae-16bc236dfb53&usid=29e9e176-cb89-454a-b2ae-16bc236dfb53&sftc=1&cac=1&mtf=1&sfp=1&instantedit=1&wopicomplete=1&wdredirectionreason=Unified_SingleFlush&rct=Normal&ctp=LeastProtected)

2001, The Stockholm Convention - <http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-COP-CONVTEXT-2021.English.pdf>  
2013 Minamata Convention - <https://www.mercuryconvention.org/sites/default/files/2021-06/Minamata-Convention-booklet-Sep2019-EN.pdf>  
2015, Paris Agreement - [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf)  
2022, UNGA Resolution - <https://documents-dds-ny.un.org/doc/UNDOC/LTD/N22/436/72/PDF/N2243672.pdf?OpenElement>

## II. References in the Context of amfori BEPI industrial processes and environmental performance areas.

- a. ISO 14001-2015: <https://www.iso.org/standard/60857.html>
- b. GRI-Global Reporting Initiative Standards <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>
  - i.302 Energy
  - ii.303 Water and Effluents
  - iii.304 Biodiversity
  - iv.305 Emissions
  - v.306 Effluents and Waste
  - vi.306 Waste
  - vii.308 Supplier environmental Assessment
- c. Global Industry Classification Standard (GICS®)- [Global Industry Classification Standard \(GICS®\): https://www.msci.com/gics](https://www.msci.com/gics)
- d. NACE classification: <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

## III. List of industrial sectors and external benchmarking data considered in amfori BEPI:

In the code of Conduct, members commit to driving improvements at their business partners' sites. Examples of best practices can be found on the data sources used for external benchmarking (such as Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries EUR 29978 EN; doi:10.2760/243911, 2019.)

- i. Food and Beverage

GICS classification	Process	DATA SOURCE / REFERENCES
302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Baking	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Blanching	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Bleaching	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Boiling	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Chilling / Refrigeration	Dri M., Antonopoulos I. S., Canfora P., Gaudillat P., Best Environmental Management Practice for the Food and Beverage Manufacturing Sector, JRC Science for Policy Report, EUR 29382 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-94313-3, doi:10.2760/2115, JRC113418, 2018.
302010 Beverages 302020 Food Products	Cleaning	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Cold Stabilisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products	Compressed air generation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Concentration by cold	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Conching	Robin Dand, 9 - Cocoa bean processing and the manufacture of chocolate, The International Cocoa Trade (Third Edition), Woodhead Publishing, Pages 268-289, ISBN 9780857091253, 2011. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Cooking	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products	Crushing	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

30202030 Packaged Foods & Meats		
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Cryoextraction	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Crystallisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019. Vaccari G., Mantovani G. (1995) Sucrose crystallisation. In: Mathlouthi M., Reiser P. (eds) Sucrose. Springer, Boston, MA. <a href="https://doi.org/10.1007/978-1-4615-2676-6_3">https://doi.org/10.1007/978-1-4615-2676-6_3</a>
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Decolourisation / Decolorization	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019. < <a href="https://www.puritech.be/food-processing/syrup-color-removal/">https://www.puritech.be/food-processing/syrup-color-removal/</a> >

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Dehulling	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Deionisation / Demineralisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030	Destemming / Destalking	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

Packaged Foods & Meats		
302010 Beverages 302020 Food Products	Disinfection	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 30201020 Distillers & Vintners 302020 Food Products	Distillation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Drying / Dehydration / Spray-drying	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030	Evaporation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

Packaged Foods & Meats		
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Extraction (supercritical extraction e.g. with propane or carbon dioxide)	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Extraction (with organic solvent, e.g. hexane and/or alcohols - ethanol, isopropanol, methanol, butanol or furfural)	E. Crenna et al. Biodiversity impacts due to food consumption in Europe, Journal of Cleaner Production 227 (2019). Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Extraction (physical - without solvent)	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

<p>302010 Beverages  302020 Food Products  30202010 Agricultural Products  30202030 Packaged Foods &amp; Meats</p>	<p>Extraction (physical - without solvent)</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages  302020 Food Products  30202010 Agricultural Products  30202030 Packaged Foods &amp; Meats</p>	<p>Extruding / Extrusion</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages  302020 Food Products</p>	<p>Filling / Bottling</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages  30201010 Brewers  302020 Food Products  30202030 Packaged Foods &amp; Meats</p>	<p>Fining / Clarification / Flocculation</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Forming	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Freezing	Dri M., Antonopoulos I. S., Canfora P., Gaudillat P., Best Environmental Management Practice for the Food and Beverage Manufacturing Sector, JRC Science for Policy Report, EUR 29382 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-94313-3, doi:10.2760/2115, JRC113418, 2018.
302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Frying	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Gas flushing	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural	Grading	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

Products 30202030 Packaged Foods & Meats		
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Grinding	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Melting	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Membrane separation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Molding	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Peeling	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Pressing	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Pulping	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019. E. Crenna et al. Biodiversity impacts due to food consumption in Europe, Journal of Cleaner Production 227 (2019).
302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Roasting	Robin Dand, 9 - Cocoa bean processing and the manufacture of chocolate, The International Cocoa Trade (Third Edition), Woodhead Publishing, Pages 268-289, ISBN 9780857091253, 2011. E. Crenna et al. Biodiversity impacts due to food consumption in Europe, Journal of Cleaner Production 227 (2019).
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Screening / Winnowing	Robin Dand, 9 - Cocoa bean processing and the manufacture of chocolate, The International Cocoa Trade (Third Edition), Woodhead Publishing, Pages 268-289, ISBN 9780857091253, 2011. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products	Sedimentation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

30202030 Packaged Foods & Meats		
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Slicing / Chopping	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Sorting	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Sterilisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Storage under gas	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Tempering	Robin Dand, 9 - Cocoa bean processing and the manufacture of chocolate, The International Cocoa Trade (Third Edition), Woodhead Publishing, Pages 268-289, ISBN 9780857091253, 2011.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Thawing	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Trimming / Cutting	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Vacuum generation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Washing	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Coating/Spraying/Enrobing/Agglomeration/Encapsulation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Freeze-drying/Lyophilisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products	Freeze-drying/Lyophilisation	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Neutralization /Neutralisation (Removal of fatty acids)	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019. Dri M., Antonopoulos I. S., Canfora P., Gaudillat P., Best Environmental Management Practice for the Food and Beverage Manufacturing Sector, JRC Science for Policy Report, EUR 29382 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-94313-3, doi:10.2760/2115, JRC113418, 2018.
302010 Beverages 302020 Food Products	Sealing/Wrapping/Labelling	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.

<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Addition of chemicals preservatives</p>	<p>V.N. Kalpana, V. Devi Rajeswari, 1 - Preservatives in Beverages: Perception and Needs, Preservatives and Preservation Approaches in Beverages, Academic Press, Pages 1-30, ISBN 9780128166857, 2019. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>30201010 Brewers 30201020 Distillers &amp; Vintners 30202030 Packaged Foods &amp; Meats</p>	<p>Aging / Ageing / Maturing / Resting / Conditioning</p>	<p>A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.</p>
<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food</p>	<p>Bottle washing</p>	<p>A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.</p>

Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats		
302010 Beverages 302020 Food Products	Calendering (plastic film)	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners	Carbonation / Carbonatation	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products 30202030	Centrifugation	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.

Packaged Foods & Meats		
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Cleaning in Place (CIP) / Washing tanks and lines / Rinsing tanks and lines	A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural	Cooling	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Dri M., Antonopoulos I. S., Canfora P., Gaudillat P., Best Environmental Management Practice for the Food and Beverage Manufacturing Sector, JRC Science for Policy Report, EUR 29382 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-94313-3, doi:10.2760/2115, JRC113418, 2018.

Products 30202030 Packaged Foods & Meats		
302010 Beverages 302020 Food Products	Extrusion (plastic film)	Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
30201010 Brewers 30201020 Distillers & Vintners 302020 Food Products	Fermenting / Fermentation	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners	Filtration	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.

<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Handeling (material reception, unpacking, storage and internal conveying)</p>	<p>E. Crenna et al. Biodiversity impacts due to food consumption in Europe, Journal of Cleaner Production 227 (2019). Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages 30201030 Soft Drinks 302020 Food Products 30202030 Packaged Foods &amp; Meats 30202010 Agricultural Products</p>	<p>Homogenisation</p>	<p>A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020</p>	<p>Kegging / Barrel filling</p>	<p>A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.</p>

Distillers & Vintners		
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners	Labelling	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.
302010 Beverages 30201010 Brewers	Malting (deculming)	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. < <a href="https://www.malteurop.com/en/de-lorge-au-malt">https://www.malteurop.com/en/de-lorge-au-malt</a> >
302010 Beverages 30201010 Brewers	Malting (germination)	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. < <a href="https://www.malteurop.com/en/de-lorge-au-malt">https://www.malteurop.com/en/de-lorge-au-malt</a> >
302010 Beverages 30201010 Brewers	Malting (kilning)	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. < <a href="https://www.malteurop.com/en/de-lorge-au-malt">https://www.malteurop.com/en/de-lorge-au-malt</a> >

302010 Beverages 30201010 Brewers	Malting (steeping)	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. < <a href="https://www.malteurop.com/en/de-lorge-au-malt">https://www.malteurop.com/en/de-lorge-au-malt</a> >
30201010 Brewers 30201020 Distillers & Vintners	Mashing / Lauter tun / Boiling / Brewing	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners	Microfiltration / Ultrafiltration	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.
302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products	Milling	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.

<p>30202030 Packaged Foods &amp; Meats</p>		
<p>302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Mincing</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Mixing / Blending</p>	<p>A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>

<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Packaging</p>	<p>A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.</p>
<p>302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers &amp; Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Pasteurization / Heat treatment / Thermal treatment / UHT</p>	<p>A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>

<p>302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Solvent recovery</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods &amp; Meats</p>	<p>Steam stripping</p>	<p>Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>
<p>302010 Beverages 30201030 Soft Drinks 302020 Food Products 30202030 Packaged Foods &amp; Meats</p>	<p>Syrup preparation</p>	<p>E. Crenna et al. Biodiversity impacts due to food consumption in Europe, Journal of Cleaner Production 227 (2019). A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.</p>

302010 Beverages 30201010 Brewers 30201030 Soft Drinks 30201020 Distillers & Vintners 302020 Food Products 30202010 Agricultural Products 30202030 Packaged Foods & Meats	Water purification	A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019. Germán Giner Santonja, Panagiotis Karlis, Kristine Raunkjær Stubdrup, Thomas Brinkmann, Serge Roudier; Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries; EUR 29978 EN; doi:10.2760/243911, 2019.
30201010 Brewers 30201020 Distillers & Vintners	Whirpooling / Wort Filtration	A. A. Olajire, The brewing industry and environmental challenges, Journal of Cleaner Production, 256, 2020. A. M. Grumezescu and A. M. Holban, Processing and Sustainability of Beverages, Woodhead Publishing, ISBN 978-0-12-815259-1, 2019.

ii. Footwear

GICS classification	Process	DATA SOURCE / REFERENCES
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Modeling / Casting / Molding	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.

252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Cleaning	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Cutting	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Sewing /Stitching	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Glue bonding	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Cement bonding	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Lasting /AGO lasting / Flexible lasting / Strobel lasting/ DA lasting	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Dyeing	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.

252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Extrusion	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Finishing	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Foaming	Song, M. S., et al. "Performance of Foam and Application in Foam Finishing of Textile." Advanced Materials Research, vol. 821–822, Trans Tech Publications, Ltd., Sept. 2013, pp. 661–664. Crossref, doi:10.4028/www.scientific.net/amr.821-822.661.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Heat press/heating and cooling	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Knitting	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Laminating/coating	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Mixing	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.

252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Priming	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. S.S. Muthu, Chapter 14 - The environmental impact of footwear and footwear materials, In Woodhead Publishing Series in Textiles, Handbook of Footwear Design and Manufacture, Woodhead Publishing, Pages 266-279, ISBN 9780857095398, 2013.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Printing/ Stamping	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Shaving/carving	Wade Motawi, Shoe Material Design Guide: The shoe designers complete guide to selecting and specifying footwear materials (How shoes are Made) 1st Edition, ISBN-13: 978-0998707044, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled "Best Available Techniques for the Production of Polymers", 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Vulcanisation	US8689381B2 Method of preparing a rubber shoe sole
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Weaving	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Welding	Wade Motawi, Shoe Material Design Guide: The shoe designers complete guide to selecting and specifying footwear materials (How shoes are Made) 1st Edition, ISBN-13: 978-0998707044, 2017.

252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Embossing / Scuffing	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Polishing	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Stiffening	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
252030 Textiles, Apparel & Luxury Goods 25203020 Footwear	Packaging	Paiva R. M. M. <i>et al.</i> Proc IMechE Part L: J Materials: Design and Applications 0(0) 1–18, 2015. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.

iii. Furniture

GICS classification	Production Process Group	Process	DATA SOURCE / REFERENCES
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Ammoniac fuming	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201034	Furniture	Assembly of furniture	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017.
Household Durables 252010 Home Furnishings 25201049	Furniture	Cutting/Sewing (fabric/leather)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
Household Durables 252010 Home Furnishings 25201021	Furniture	Fitting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201022	Furniture	Flash-off and drying/ Heating / Curing	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017. Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Grading and cutting of timber	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.

Household Durables 252010 Home Furnishings 25201020	Furniture	Joining	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201038	Furniture	Lamination	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201042	Furniture	Moulding (wood) / Coving	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.
Household Durables 252010 Home Furnishings 25201047	Furniture	Packing and shipping	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017.
Household Durables 252010 Home Furnishings 25201026	Furniture	Staining/ Glazing / Varnishing /Bleaching / Cleaning with organic solvent	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Household Durables 252010 Home Furnishings 25201039	Furniture	Wood Bending	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Reception/storage/warehouse	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Household Durables 252010	Furniture	Reception/storage/warehouse	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.

Home Furnishings 25201044			
Household Durables 252010 Home Furnishings 25201040	Furniture	Welding	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201027	Furniture	Assembly of furniture frame	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201033	Furniture	Boring/Drilling	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201043	Furniture	Carving	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201029	Furniture	Coating / finishing (application of a base coat/ application of a topcoat) - spraying / casting /rolling / dipping	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.

Household Durables 252010 Home Furnishings 25201043	Furniture	Cutting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> SCALET Bianca Maria, GARCIA MUÑOZ Marcos, SISSA Aivi Querol, ROUDIER Serge, DELGADO SANCHO Luis. Best Available Techniques (BAT) Reference Document for The Manufacture of Glass, European Comission, 2013.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Cutting-to-size / storage	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Debarking of logs/chips	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Household Durables 252010 Home Furnishings 25201042	Furniture	Designing / drawings	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201022	Furniture	Drying (solvent evaporation)	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017. Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Drying of wood fibres	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010	Furniture	Edge Banding	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>

Home Furnishings 25201037			
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Fibre production : cooking and refining	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201020	Furniture	Glueing / Bonding	D.E. Packham, Adhesive technology and sustainability, International Journal of Adhesion and Adhesives, Volume 29, Issue 3, 2009
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Mat-forming (pre-press)	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201020	Furniture	Metal (tubes, rods, sheets) bending (iron, steel, aluminum)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. < <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> >
Household Durables 252010 Home Furnishings 25201020	Furniture	Metal casting (iron, steel, aluminum)	CAMPBELL, John. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a>
Household Durables 252010 Home Furnishings 25201020	Furniture	Metal forming (iron, steel, aluminum, alloys)	HOFFMAN, H. (Ed.). Metal Forming Handbook. Springer Science & Business Media, 1998.

Household Durables 252010 Home Furnishings 25201020	Furniture	Metal rolling/ forging (iron, steel, aluminum)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> <a href="http://thelibraryofmanufacturing.com/metalcasting_basics.html">http://thelibraryofmanufacturing.com/metalcasting_basics.html</a> <a href="http://thelibraryofmanufacturing.com/forging.html">http://thelibraryofmanufacturing.com/forging.html</a>
Household Durables 252010 Home Furnishings 25201020	Furniture	Metal sheets cutting/trimming (iron, steel, aluminum, alloys)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. < <a href="https://www.furniturelinkca.com/metalfab.htm">https://www.furniturelinkca.com/metalfab.htm</a> >
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Mixing dried wood particles or fibres with resin	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201028	Furniture	Moulding / molding (Plastics): injection moulding / blow moulding / rotomoulding	European Commission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.
Household Durables 252010 Home Furnishings 25201022	Furniture	Off-gas treatment (Dry overspray separation / Electrostatic filter (precipitator) / Wet scrubbing / Thermal oxidation )	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Oven drying of panels	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.

Household Durables 252010 Home Furnishings 25201030	Furniture	Painting (spraying / rolling / dipping / brushing / printing)	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Panel cooling and sanding	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Pressing / Hot pressing	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201048	Furniture	Sanding/Polishing	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Household Durables 252010 Home Furnishings 25201043	Furniture	Sawing (wood/wood panels)	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> <u>Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.</u>
Household Durables 252010 Home Furnishings 25201027	Furniture	Scraping/Planing	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>

Household Durables 252010 Home Furnishings 25201022	Furniture	Solvent recovery	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Household Durables 252010 Home Furnishings 25201023	Furniture	Upholstery assembly (springs, filling material and cover)	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Household Durables 252010 Home Furnishings 25201048	Furniture	Veneering	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Wet fibre mixing (water and additives)	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Paper&Forest Products 151050 Forest Products 15105010	Wood-based panels	Soaking of logs / Wood chip preparation	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.

iv. Gardening

GICS classification	Classification Guidance	Production Process Group	Process	DATA SOURCE / REFERENCES
Home Furnishings 25201020 Home Furnishings 25201046	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Assembly of furniture	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017.
Housewares & Specialties 25201050 Housewares & Specialties 25201055	<u>Housewares &amp; Specialties</u> <u>25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Forming (metal parts)	Bending / Punching	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. CAMPBELL, John. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
Home Furnishings 25201020 Home Furnishings 25201046	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Cutting/Sewing (fabric/leather)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
Home Furnishings 25201020 Home Furnishings 25201041	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Fitting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>

Home Furnishings 25201020 Home Furnishings 25201048	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Finishing	Flash-off and drying/ Curing	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017. Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Home Furnishings 25201020 Home Furnishings 25201039	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Jointing	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201026	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Finishing	Lamination	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Housewares & Specialties 25201050 Housewares & Specialties 25201057	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Forming (metal parts)	Mold making / Mould Making	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.

Housewares & Specialties 25201050 Housewares & Specialties 25201057	<u>Housewares &amp; Specialties</u> <u>25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Forming (metal parts)	Molding / Moulding	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
Home Furnishings 25201020 Home Furnishings 25201028	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Moulding (wood) / Coving	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.
Home Furnishings 25201020 Home Furnishings 25201048	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Finishing	Packing and shipping	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017.
Home Furnishings 25201020 Home Furnishings 25201045	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Finishing	Staining/ Glazing / Varnishing /Bleaching / Cleaning with organic solvent	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Housewares & Specialties 25201050 Housewares &	<u>Housewares &amp; Specialties</u> <u>25201050</u> Manufacturers of durable household products, including cutlery, cookware,	Assembly	Welding	Roger Timings, Chapter 11 - Joining processes (welding), Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008. Rainer Remu et al., Best Available Techniques (BAT) Reference

Specialties 25201053	glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.			Document for Iron and Steel Production, European Commission, 2013.
Home Furnishings 25201020 Home Furnishings 25201029	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Wood Bending	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Home Furnishings 25201020 Home Furnishings 25201020	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly	Reception/storage/warehouse	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Housewares & Specialties 25201050 Housewares & Specialties 25201057	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Forming (metal parts)	Stamping/pressing - metal parts	SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003.
Housewares & Specialties 25201050 Housewares & Specialties 25201056	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils,	Assembly	Stamping/pressing - plastic parts	European Commission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.

	kitchenware and consumer specialties not classified elsewhere.			
Home Furnishings 25201020 Home Furnishings 25201027	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Welding	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Home Furnishings 25201020 Home Furnishings 25201042	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Assembly of furniture frame	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201038	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Boring/Drilling	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201035	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Carving	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>

Housewares & Specialties 25201050 Housewares & Specialties 25201060	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Finishing	Coating (application of a base coat/ application of a topcoat) - spraying / casting /rolling / dipping	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempny, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.
Home Furnishings 25201020 Home Furnishings 25201047	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Finishing	Coating (application of a base coat/ application of a topcoat) - spraying / casting /rolling / dipping	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempny, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.
Housewares & Specialties 25201050 Housewares & Specialties 25201052	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Assembly	Cutting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> <u>SCALET Bianca Maria, GARCIA MUÑOZ Marcos, SISSA Aivi Querol, ROUDIER Serge, DELGADO SANCHO Luis. Best Available Techniques (BAT) Reference Document for The Manufacture of Glass, European Comission, 2013.</u>
Home Furnishings 25201020 Home Furnishings 25201033	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or	Assembly / manufacturing	Cutting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> <u>SCALET Bianca Maria, GARCIA MUÑOZ Marcos, SISSA Aivi Querol, ROUDIER Serge, DELGADO SANCHO Luis. Best Available</u>

	furniture, including upholstery, carpets and wall-coverings.			<u>Techniques (BAT) Reference Document for The Manufacture of Glass, European Comission, 2013.</u>
Home Furnishings 25201020 Home Furnishings 25201030	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Designing / drawings	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201046	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Drying (solvent evaporation)	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017. Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Home Furnishings 25201020 Home Furnishings 25201034	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Edge Banding	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Housewares & Specialties 25201050 Housewares & Specialties 25201054	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and	Forming (plastic parts)	Extrusion / Injection / Foaming	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020. NIKPEY, Ahmad et al. Evaluation of respiratory exposure to 4, 4-methylene diphenyl diisocyanate (MDI) vapors in foam injection workers in a household appliance manufacturing company: An

	consumer specialties not classified elsewhere.			Occupational Carcinogen. Asian Pacific Journal of Environment and Cancer, v. 2, n. 1, p. 23-27, 2019
Housewares & Specialties 25201050 Housewares & Specialties 25201055	<u>Housewares &amp; Specialties</u> <u>25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Forming (metal parts)	Forming (others)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013.
Home Furnishings 25201020 Home Furnishings 25201040	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Glueing / Bonding	D.E. Packham, Adhesive technology and sustainability, International Journal of Adhesion and Adhesives, Volume 29, Issue 3, 2009
Home Furnishings 25201020 Home Furnishings 25201023	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly	Metal (tubes, rods, sheets) bending (iron, steel, aluminum)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013. < <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> >
Home Furnishings 25201020 Home Furnishings 25201021	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including	Assembly	Metal casting (iron, steel, aluminum)	CAMPBELL, John. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission,

	upholstery, carpets and wall-coverings.			2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a>
Home Furnishings 25201020 Home Furnishings 25201025	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly	Metal forming (iron, steel, aluminum, alloys)	HOFFMAN, H. (Ed.). Metal Forming Handbook. Springer Science & Business Media, 1998.
Home Furnishings 25201020 Home Furnishings 25201022	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly	Metal rolling/ forging (iron, steel, aluminum)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> <a href="http://thelibraryofmanufacturing.com/metalcasting_basics.html">http://thelibraryofmanufacturing.com/metalcasting_basics.html</a> <a href="http://thelibraryofmanufacturing.com/forging.html">http://thelibraryofmanufacturing.com/forging.html</a>
Home Furnishings 25201020 Home Furnishings 25201024	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly	Metal sheets cutting/trimming (iron, steel, aluminum, alloys)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013. < <a href="https://www.furniturelinkca.com/metalfab.htm">https://www.furniturelinkca.com/metalfab.htm</a> >
Home Furnishings 25201020 Home Furnishings 25201044	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Moulding (Plastics): injection moulding / blow moulding / rotomoulding	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.
Housewares & Specialties 25201050	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household	Assembly	Not defined (Assembly)	LOTTER, Bruno. Manufacturing assembly handbook. Butterworth-Heinemann, 2013.

Housewares & Specialties 25201051	products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.			
Home Furnishings 25201020 Home Furnishings 25201046	<u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Off-gas treatment (Dry overspray separation / Electrostatic filter (precipitator) / Wet scrubbing / Thermal oxidation )	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Housewares & Specialties 25201050 Housewares & Specialties 25201058	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Finishing	Packing and shipping	Donatello S., Moons H., Wolf, O. Revision of EU Ecolabel criteria for furniture products. Final Technical Report, 28443 EN, doi:10.2760/59027, 2017.
Housewares & Specialties 25201050 Housewares & Specialties 25201059	<u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.	Finishing	Painting (spraying / rolling / dipping / brushing / printing)	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.

<p>Home Furnishings 25201020 Home Furnishings 25201048</p>	<p><u>Home Furnishings 25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.</p>	<p>Finishing</p>	<p>Painting (spraying / rolling / dipping / brushing / printing)</p>	<p>Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.</p>
<p>Housewares &amp; Specialties 25201050 Housewares &amp; Specialties 25201061</p>	<p><u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and consumer specialties not classified elsewhere.</p>	<p>Finishing</p>	<p>Plating</p>	<p>ZHANG, J. Bright Silver Plating of Deluxe Tableware. ELECTROPLATING AND FINISHING, v. 14, p. 13-14, 1995. HOWE, P. D.; DOBSON, S. Silver and silver compounds: environmental aspects. Concise International Chemical Assessment Document 44. World Health Organization, Geneva, 2002. Niels Hadrup et al. Toxicity of silver ions, metallic silver, and silver nanoparticle materials after in vivo dermal and mucosal surface exposure: A review, Regulatory Toxicology and Pharmacology, Volume 98, 2018. Takahiro Mori et al. Ag Electrodeposition from Silver Solvate Ionic Liquid Meet. Abstr. MA2020-02 3589, 2020. Madeira Diana, et al. Synergistic Effects of Ocean Warming and Cyanide Poisoning in an Ornamental Tropical Reef Fish, Frontiers in Marine Science, vol 7, 2020.</p>
<p>Housewares &amp; Specialties 25201050 Housewares &amp; Specialties 25201050</p>	<p><u>Housewares &amp; Specialties 25201050</u> Manufacturers of durable household products, including cutlery, cookware, glassware, crystal, silverware, utensils, kitchenware and</p>	<p>Assembly</p>	<p>Pressing</p>	<p>SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003.</p>

	consumer specialties not classified elsewhere.			
Home Furnishings 25201020 Home Furnishings 25201036	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Sanding/Polishing	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201032	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Sawing (wood/wood panels)	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> <u>Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.</u>
Home Furnishings 25201020 Home Furnishings 25201031	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Scraping/Planing	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>
Home Furnishings 25201020 Home Furnishings 25201046	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Solvent recovery	Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Home Furnishings 25201020 Home Furnishings 25201043	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or	Assembly / manufacturing	Upholstery assembly (springs, filling material and cover)	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.

	furniture, including upholstery, carpets and wall-coverings.			
Home Furnishings 25201020 Home Furnishings 25201037	<u>Home Furnishings</u> <u>25201020</u> Manufacturers of soft home furnishings or furniture, including upholstery, carpets and wall-coverings.	Assembly / manufacturing	Veneering	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>

v. Home appliance, Electric-Electronic

GICS classification	Production Process Group	Process	DATA SOURCE / REFERENCES
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Casting	CAMPBELL, John. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming	Coating	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Cutting	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming	Enamelling	AMIENYO, David et al. Sustainable manufacturing of consumer appliances: Reducing life cycle environmental impacts and costs of domestic ovens. Sustainable Production and Consumption, v. 6, p. 67-76, 2016.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Forming (including bending)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.

ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Milling	KNIGHT, Winston A.; BOOTHROYD, Geoffrey. Fundamentals of metal machining and machine tools. CRC Press, 2019.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Mold making / Mould Making	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Molding / Moulding	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Serration / Grooving	<a href="https://www.schwanog.com/en/applications/broaching-of-serration.html">https://www.schwanog.com/en/applications/broaching-of-serration.html</a>
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Shearing	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.

ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Silver plating	WANG, Weiqiang et al. An Assessment of Immersion Silver Surface Finish for Lead-Free Electronics. Journal of electronic materials, v. 38, n. 6, 2009. HOWE, P. D.; DOBSON, S. Silver and silver compounds: environmental aspects. Concise International Chemical Assessment Document 44. World Health Organization, Geneva, 2002. Niels Hadrup et al. Toxicity of silver ions, metallic silver, and silver nanoparticle materials after in vivo dermal and mucosal surface exposure: A review, Regulatory Toxicology and Pharmacology, Volume 98, 2018. Takahiro Mori et al. Ag Electrodeposition from Silver Solvate Ionic Liquid Meet. Abstr. MA2020-02 3589, 2020. Madeira Diana, et al. Synergistic Effects of Ocean Warming and Cyanide Poisoning in an Ornamental Tropical Reef Fish, Frontiers in Marine Science, vol 7, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Smelting	European Comission, Reference Document on Best Available Techniques in the Smitheries and Foundries Industry, 2005.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Welding	Roger Timings, Chapter 11 - Joining processes (welding), Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Annealing/tempering	Karl-Erik Thelning, 5 - Heat treatment—general, Editor(s): Karl-Erik Thelning, Steel and its Heat Treatment (Second Edition), Butterworth-Heinemann, 1984.

ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Rolling/forging	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> <a href="http://thelibraryofmanufacturing.com/metalcasting_basics.html">http://thelibraryofmanufacturing.com/metalcasting_basics.html</a> <a href="http://thelibraryofmanufacturing.com/forging.html">http://thelibraryofmanufacturing.com/forging.html</a>
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Stamping/pressing - metal parts	SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Stamping/pressing - plastic parts	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Trimming	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Assembly / installation of pieces / parts / screws / cover	ULUSKAN, Meryem; ODA, Ezgi Pinar. A thorough Six Sigma DMAIC application for household appliance manufacturing systems. The TQM Journal, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming	Batterie manufacturing	N. A. Smith, Chapter 81 - Electrical Appliances and Equipment, < <a href="http://www.ilocis.org/documents/chpt81e.htm">http://www.ilocis.org/documents/chpt81e.htm</a> >

ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Blanking	Roger Timings, Chapter 6 - Material removal, Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008.  <a href="https://www.ohiovalleymfg.com/blog/blanking/">https://www.ohiovalleymfg.com/blog/blanking/</a>
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Buffing and sand polishing	J F Archard, Mechanical Polishing of Metals: A Scientific argument of long standing, Phys. Bull. 36 212, 1985. < <a href="https://www.metalpolishingsupplies.co.uk/beginners-guide-to-metal-polishing/">https://www.metalpolishingsupplies.co.uk/beginners-guide-to-metal-polishing/</a> >
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Chrome plating	JACOBS, James A.; TESTA, Stephen M. Overview of chromium (VI) in the environment: background and history. Chromium (VI) handbook, p. 1-21, 2005. Matteo Goldoni et al. ,Determination of hexavalent chromium in exhaled breath condensate and environmental air among chrome plating workers, Analytica Chimica Acta, Volume 562, Issue 2, 2006. R. Rodríguez et al., Life cycle assessment and techno-economic evaluation of alternatives for the treatment of wastewater in a chrome-plating industry, Journal of Cleaner Production, Volume 172, 2018.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Connecting (installing) cables/ panels / motors / compressors / fans / heat exchangers / screens / lamps / sensors / circuits / batteries	ULUSKAN, Meryem; ODA, Ezgi Pinar. A thorough Six Sigma DMAIC application for household appliance manufacturing systems. The TQM Journal, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Cutting	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.

ConsumerElectronics 25201010 Household Appliances 25201040	Forming (plastic parts)	Extrusion / Injection / Foaming	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020. NIKPEY, Ahmad et al. Evaluation of respiratory exposure to 4, 4-methylene diphenyl diisocyanate (MDI) vapors in foam injection workers in a household appliance manufacturing company: An Occupational Carcinogen. Asian Pacific Journal of Environment and Cancer, v. 2, n. 1, p. 23-27, 2019
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Foundry operations	European Comission, Reference Document on Best Available Techniques in the Smitheries and Foundries Industry, 2005.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming (metal parts)	Grinding	Roger Timings, Chapter 6 - Material removal, Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Insulation	NIKPEY, Ahmad et al. Evaluation of respiratory exposure to 4, 4-methylene diphenyl diisocyanate (MDI) vapors in foam injection workers in a household appliance manufacturing company: An Occupational Carcinogen. Asian Pacific Journal of Environment and Cancer, v. 2, n. 1, p. 23-27, 2019.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Packaging /transfer to warehouse / shipping	ULUSKAN, Meryem; ODA, Ezgi Pinar. A thorough Six Sigma DMAIC application for household appliance manufacturing systems. The TQM Journal, 2020.

ConsumerElectronics 25201010 Household Appliances 25201040	Forming	Painting / Spraying	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Forming	Sol-gel coating	AMIENYO, David et al. Sustainable manufacturing of consumer appliances: Reducing life cycle environmental impacts and costs of domestic ovens. Sustainable Production and Consumption, v. 6, p. 67-76, 2016.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Stick labels	ULUSKAN, Meryem; ODA, Ezgi Pinar. A thorough Six Sigma DMAIC application for household appliance manufacturing systems. The TQM Journal, 2020.
ConsumerElectronics 25201010 Household Appliances 25201040	Assembly	Transfer / Internal transport	LOTTER, Bruno. Manufacturing assembly handbook. Butterworth-Heinemann, 2013.

vi. Kitchen Merchandise (Metal, Ceramics, Plastic, Glass, Wood/Bamboo)

GICS classification	Production Process Group	Process	DATA SOURCE / REFERENCES
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201070	Metal / Glass / Plastics / Wood / Bamboo	Coating	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201070	Metal	Enamelling / Metal-enamel interlocking coating	Wang, H., Zhang, C., Jiang, C. et al. Microstructure and Improved Thermal Shock Behaviour of an In Situ Formed Metal-Enamel Interlocking Coating. Acta Metall. Sin., Engl. Lett., 2021.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201070	Metal	Milling	KNIGHT, Winston A.; BOOTHROYD, Geoffrey. Fundamentals of metal machining and machine tools. CRC Press, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201070	Metal	Mold making / Mould Making	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201071	Metal	Molding / Moulding	CAMPBELL, John. Chapter 15 - Moulding, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201059	Metal	Serration / Grooving	<a href="https://www.schwanog.com/en/applications/broaching-of-serration.html">https://www.schwanog.com/en/applications/broaching-of-serration.html</a>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201073	Metal	Silver plating	ZHANG, J. Bright Silver Plating of Deluxe Tableware. ELECTROPLATING AND FINISHING, v. 14, p. 13-14, 1995. HOWE, P. D.; DOBSON, S. Silver and silver compounds: environmental aspects. Concise International Chemical Assessment Document 44. World Health Organization, Geneva, 2002. Niels Hadrup et al. Toxicity of silver ions, metallic silver, and silver nanoparticle materials after in vivo dermal and mucosal surface exposure: A review, Regulatory Toxicology and Pharmacology, Volume 98, 2018. Takahiro Mori et al. Ag Electrodeposition from Silver Solvate Ionic Liquid Meet. Abstr. MA2020-02 3589, 2020. Madeira Diana, et al. Synergistic Effects of Ocean Warming and Cyanide Poisoning in an Ornamental Tropical Reef Fish, Frontiers in Marine Science, vol 7, 2020.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201056	Metal	Welding	Roger Timings, Chapter 11 - Joining processes (welding), Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201052	Metal	Rolling/forging	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013. <a href="https://www.metalchairs.net/metal-furniture-production/">https://www.metalchairs.net/metal-furniture-production/</a> <a href="http://thelibraryofmanufacturing.com/metalcasting_basics.html">http://thelibraryofmanufacturing.com/metalcasting_basics.html</a> <a href="http://thelibraryofmanufacturing.com/forging.html">http://thelibraryofmanufacturing.com/forging.html</a>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201053	Metal	Stamping/ pressing	SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201055	Metal	Annealing/ tempering	Karl-Erik Thelning, 5 - Heat treatment—general, Editor(s): Karl-Erik Thelning, Steel and its Heat Treatment (Second Edition), Butterworth-Heinemann, 1984.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201057	Metal	Blanking	Roger Timings, Chapter 6 - Material removal, Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201060	Metal	Buffing / Sand paper polishing / Mechanical polishing	J F Archard, Mechanical Polishing of Metals: A Scientific argument of long standing, Phys. Bull. 36 212, 1985. < <a href="https://www.metalpolishingsupplies.co.uk/beginners-guide-to-metal-polishing/">https://www.metalpolishingsupplies.co.uk/beginners-guide-to-metal-polishing/</a> >
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201062	Metal	Casting	CAMPBELL, John. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015. Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010	Metal	Chemical - mechanical polishing / Mechanochemical	Zhenyu Zhang et al. Environment friendly chemical mechanical polishing of copper, Applied Surface Science, Volumes 467–468, 2019.

<<Housewares&Specialties 25201063		polishing / Chemical polishing	
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201064	Metal	Chrome plating	<p>JACOBS, James A.; TESTA, Stephen M. Overview of chromium (VI) in the environment: background and history. Chromium (VI) handbook, p. 1-21, 2005.</p> <p>Matteo Goldoni et al. ,Determination of hexavalent chromium in exhaled breath condensate and environmental air among chrome plating workers, Analytica Chimica Acta, Volume 562, Issue 2, 2006.</p> <p>R. Rodríguez et al., Life cycle assessment and techno-economic evaluation of alternatives for the treatment of wastewater in a chrome-plating industry, Journal of Cleaner Production, Volume 172, 2018.</p>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201065	Metal	Cutting/ trimming	<p>Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.</p> <p>&lt;<a href="https://www.furniturelinkca.com/metalfab.htm">https://www.furniturelinkca.com/metalfab.htm</a>&gt;</p>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201066	Metal	Electrochemical Mechanical polishing / Electrochemical machining (ECM)	<p>S. C. TAM, N. H. LOH &amp; S. MIYAZAWA. ECM-abrasive polishing of metals, International Journal of Production Research, 27:10, 1757-1768, 1989.</p>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201067	Metal	Extrusion	<p>TEKKAYA, A. Erman; JÄGER, Andreas (Ed.). Advances in Hot Metal Extrusion and Simulation of Light Alloys. Trans Tech Publications Ltd, 2013.</p>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201068	Metal	Forming	<p>Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.</p>

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201069</p>	<p>Metal</p>	<p>Grinding</p>	<p>Roger Timings, Chapter 6 - Material removal, Editor(s): Roger Timings, Fabrication and Welding Engineering, Newnes, 2008.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201072</p>	<p>Metal</p>	<p>Laser polishing / Laser finishing  Plasma Electrolytic Polishing / Electro polishing</p>	<p>Astrid Sassmannshausen, Ultrashort pulse laser polishing by continuous surface melting, Journal of Materials Processing Technology, Volume 293, 2021.  Jilin Xu et al., Study on the mechanism of surface topography evolution in melting and transition regimes of laser polishing, Optics &amp; Laser Technology, Volume 1, 2021.  Klaus Nestler et al., Plasma Electrolytic Polishing – An Overview of Applied Technologies and Current Challenges to Extend the Polishable Material Range, Procedia CIRP, Volume 42, 2016.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201050</p>	<p>Metal</p>	<p>Melting / Smelting</p>	<p>CAMPBELL, John. Chapter 14 - Melting, Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.  European Comission, Reference Document on Best Available Techniques in the Smitheries and Foundries Industry, 2005.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201050</p>	<p>Metal</p>	<p>Packing and shipping</p>	<p>MCKINNON, Alan et al. (Ed.). Green logistics: Improving the environmental sustainability of logistics. Kogan Page Publishers, 2015.</p>

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201050	Metal	Painting	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201050	Metal	Preheating (by the off-gas in order to recover energy)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201051	Metal	Raw materials reception / handling / storage	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013. BREF (2006) Reference document on Best Available Techniques (BAT) on emission from storage. European Commission, DG JRC, Sevilla, Spain.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201051	Metal	Shearing / cutting	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201058	Metal	Solidifying	CAMPBELL, John. Chapter 17 - Controlled Solidification Techniques. Complete casting handbook: metal casting processes, metallurgy, techniques and design. Butterworth-Heinemann, 2015.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201073	Ceramics	Raw materials reception, storage and internal transport	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201090	Ceramics	Mixing / Stirring	HEINRICH, Jürgen G.; GOMES, Cynthia M. Introduction to ceramics processing. 2014.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201091	Ceramics	Mold making / Mould Making / Production of moulds	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201088	Ceramics	Molding / Moulding / Shaping / Forming	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201085	Ceramics	Casting	European Comission, Reference document on Best Available Techniques in the ceramic manufacturing industry, 2007. SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201086	Ceramics	Jiggering / Jollying	<a href="https://www.britannica.com/art/jiggering">https://www.britannica.com/art/jiggering</a>
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201087	Ceramics	Extrusion	European Comission, Reference document on Best Available Techniques in the ceramic manufacturing industry, 2007. SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201078	Ceramics	Firing / Calcining	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201079	Ceramics	Drying	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201075	Ceramics	Cooling	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201076	Ceramics	Enamelling	SINGER, Felix. Industrial ceramics. Springer, 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201082	Ceramics	Sorting	European Comission, Reference document on Best Available Techniques in the ceramic manufacturing industry, 2007.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201083	Ceramics	Grinding and polishing	European Comission, Reference document on Best Available Techniques in the ceramic manufacturing industry, 2007.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201081	Ceramics	Decoration / Engobing / Coating	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019. European Comission, Reference document on Best Available Techniques in the ceramic manufacturing industry, 2007.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201084	Ceramics	Glazing	SALMINEN, Esa; MJÖBERG, Johan; ANHAVA, Juhani. Nordic Ceramics Industry: Best Available Technique (BAT). Nordic Council of Ministers, 2019.

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201091</p>	<p>Glass</p>	<p>Packaging and shipping</p>	<p>SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201092</p>	<p>Glass</p>	<p>Finishing</p>	<p>SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201093</p>	<p>Glass</p>	<p>Coating</p>	<p>Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201094</p>	<p>Glass</p>	<p>Annealing</p>	<p>SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.</p>

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201096	Glass	Cooling	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201097	Glass	Cutting	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201098	Glass	Forming	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201099	Glass	Blowing/pressing	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201100	Glass	Melting	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201101	Glass	Materials handling/ Mixing	SCALET Bianca et al. Best Available Techniques (BAT) Reference Document for the Manufacture of Glass: Industrial Emissions Directive 2010/75/EU:(Integrated Pollution Prevention and Control). Joint Research Centre (Seville site), 2013.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201102	Plastic	Packaging and shipping	MCKINNON, Alan et al. (Ed.). Green logistics: Improving the environmental sustainability of logistics. Kogan Page Publishers, 2015.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201103	Plastic	Cutting	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201104	Plastic	Cooling	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201106	Plastic	Heating	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010	Plastic	Stamping	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.

<<Housewares&Specialties 25201107			CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201108	Plastic	Rolling	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201109	Plastic	Forming	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201110	Plastic	Moulding / Molding: injection moulding / rotomoulding	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201111	Plastic	Mold / Mould making	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201112</p>	<p>Plastic</p>	<p>Extrusion (single screw/ twin  screw/ co-extrusion/ reactive  extrusion / extrusion coating)</p>	<p>European Comission, Reference Document on Best Available Techniques in the  Production of Polymers, August 2007.  CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-  Heinemann, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201105</p>	<p>Plastic</p>	<p>Foaming/ foam extrusion</p>	<p>WYPYCH, George. Handbook of foaming and blowing agents. Elsevier, 2017.  GENDRON, Richard et al. Foaming polystyrene with a mixture of CO2 and  ethanol. Journal of cellular plastics, v. 42, n. 2, p. 127-138, 2006.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201110</p>	<p>Plastic</p>	<p>Blow moulding / Blow film</p>	<p>European Comission, Reference Document on Best Available Techniques in the  Production of Polymers, August 2007.  CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-  Heinemann, 2020.  WYPYCH, George. Handbook of foaming and blowing agents. Elsevier, 2017.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201110</p>	<p>Plastic</p>	<p>Fibre spinning</p>	<p>European Comission, Reference Document on Best Available Techniques in the  Production of Polymers, August 2007.</p>

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201113</p>	<p>Plastic</p>	<p>Coating</p>	<p>Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201114</p>	<p>Plastic</p>	<p>Sanding / polishing</p>	<p>CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201115</p>	<p>Wood / Bamboo</p>	<p>Scraping/Planing</p>	<p><a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a></p>

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201116</p>	<p>Wood / Bamboo</p>	<p>Spraying/painting</p>	<p>Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.  Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201117</p>	<p>Wood / Bamboo</p>	<p>Assembly</p>	<p>LOTTER, Bruno. Manufacturing assembly handbook. Butterworth-Heinemann, 2013.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201118</p>	<p>Wood / Bamboo</p>	<p>Pressing</p>	<p>Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201119</p>	<p>Wood / Bamboo</p>	<p>Glueing/Bonding</p>	<p>D.E. Packham, Adhesive technology and sustainability, International Journal of Adhesion and Adhesives, Volume 29, Issue 3, 2009</p>

ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201120	Wood / Bamboo	Edge Banding/Veneering	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201121	Wood / Bamboo	Lamination/Coating	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201122	Wood / Bamboo	Bending	PANDA, H. Bamboo Plantation and Utilization Handbook. Asia Pacific Business Press Inc., 2011.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201123	Wood / Bamboo	Welding	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201124	Wood / Bamboo	Coving	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.
ConsumerDurables&Apparel 2520 <Household Durables 252010 <<Housewares&Specialties 25201125	Wood / Bamboo	Sawing/Cutting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.

<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201128</p>	<p>Wood / Bamboo</p>	<p>Sanding/Polishing</p>	<p><a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a>  Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sanchó; <u>Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.</u></p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201114</p>	<p>Wood / Bamboo</p>	<p>Finish application</p>	<p>Georgios Chronopoulos, Gizem-Ece Cakmak, Paul Tempany, Gabriele Klein, Thomas Brinkmann, Benoit Zerger, Serge Roudier, Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.  Xianqing Xiong, et al. Current situation and key manufacturing considerations of green furniture in China: A review, Journal of Cleaner Production, Volume 267, 2020.</p>
<p>ConsumerDurables&amp;Apparel 2520  &lt;Household Durables 252010  &lt;&lt;Housewares&amp;Specialties  25201127</p>	<p>Wood / Bamboo</p>	<p>Packing and shipping</p>	<p>MCKINNON, Alan et al. (Ed.). Green logistics: Improving the environmental sustainability of logistics. Kogan Page Publishers, 2015.</p>

vii. Leather

GICS classification	Production Process Group	Process	DATA SOURCE / REFERENCES
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Tanning	Basification	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Bating	Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Bleaching	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Buffing / Dedusting	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Conditioning	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods	Pretanning or beamhouse operations	Curing	Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.

25201020 Home Furnishings			
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Degreasing	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Delimiting	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Draining	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Dry milling	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Drying	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Dyeing	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.

252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Fatliquoring / Stuffing	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Finishing / Coating	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Horsing / Piling	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Neutralisation	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Painting, fleshing and liming (sheepskins)	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Pickling	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.

252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Plating / Flattening	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Reliming	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Retanning	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013. Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Samming	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Setting / Setting -out	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Posttanning	Shaving	European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.

252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Soaking / Washing	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Sorting	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Splitting	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Tanning	Tanning	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Trimming	Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79. European Commission, Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins, 2013.
252030 Textiles, Apparel & Luxury Goods 25201020 Home Furnishings	Pretanning or beamhouse operations	Unhairing, fleshing and liming (bovine hides)	Federal Environment Agency of Germany, Best available techniques for environmental protection in textiles and leather industry, ISSN 2363-832X, 2017. Thanikaivelan, P., Rao, J. R., Nair, B. U., & Ramasami, T. (2005). Recent Trends in Leather Making: Processes, Problems, and Pathways. Critical Reviews in Environmental Science and Technology, 35(1), 37–79.



## viii. Man-Made Fiber Production

GICS Classification	Production Process Group	Processes	Sub-processes	DATA SOURCE / REFERENCES
25203030 Textiles	MMF man made fiber spinning	(chemical/primary) Spinning	Wet spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber spinning	(chemical/primary) Spinning	Dry spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber spinning	(chemical/primary) Spinning	Melt spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber spinning	(chemical/primary) Spinning	Gel spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.

25203030 Textiles	MMF man made fiber spinning	(chemical/primary) Spinning	Airjet spinning	European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Polymerisation		Frigione, M.; Marini, G.; Pinna, M. A Thermal Analysis-Based Approach to Identify Different Waste Macroplastics in Beach Litter: The Case Study of Aquatina di Frigole NATURA 2000 Site (IT9150003, Italy). Sustainability, 13, 3186, 2021. European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Cutting		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Extraction		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.

25203030 Textiles	MMF man made fiber production	Drying		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Stretching/ Drawing /Winding		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Extrusion		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Cellulose processing		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Filament production		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.

25203030 Textiles	MMF man made fiber production	Texturing/crimping		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Nylon casting		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Intermingling/interlacing		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Needeling		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	MMF man made fiber production	Heat setting		European Commission, The BAT (Best Available Techniques) Reference Document (BREF) entitled “Best Available Techniques for the Production of Polymers”, 2007. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.

ix. Personal care products (PCPs)

GICS classification	Process	DATA SOURCE / REFERENCES
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Bulk Solids Processing/ Blending /Granulation	FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Capping/sealing	JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley & Sons, 2019. FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Cleaning	JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley & Sons, 2019. Danelle Dhanirama, Jan Gronow & Nikolaos Voulvoulis, Cosmetics as a potential source of environmental contamination in the UK, Environmental Technology, 33:14, 1597-1608, 2012.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Coating / Fluidized bed coating	SAOUTER, Erwan; VAN HOOFF, Gert. A database for the life-cycle assessment of Procter & Gamble laundry detergents. The International Journal of Life Cycle Assessment, v. 7, n. 2, p. 103-114, 2002.

<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Cooling</p>	<p>SAOUTER, Erwan; VAN HOOFF, Gert. A database for the life-cycle assessment of Procter &amp; Gamble laundry detergents. The International Journal of Life Cycle Assessment, v. 7, n. 2, p. 103-114, 2002.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Crimping</p>	<p>CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Cutting</p>	<p>European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.  CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Dispersion Processing / Mixing / Emulsification</p>	<p>FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Distillation/purification</p>	<p>AQAR, Dhia Y. et al. Optimisation of semi-batch reactive distillation column for the synthesis of methyl palmitate. Separation and Purification Technology, v. 270, p. 118776, 2021.  LÓPEZ-HORTAS, L. et al. Bioactive extracts from edible nettle leaves using microwave hydrodiffusion and gravity and distillation extraction techniques. Process Biochemistry, v. 94, p. 66-78, 2020.</p>

<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Drying</p>	<p>JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley &amp; Sons, 2019.  SAOUTER, Erwan; VAN HOOFF, Gert. A database for the life-cycle assessment of Procter &amp; Gamble laundry detergents. The International Journal of Life Cycle Assessment, v. 7, n. 2, p. 103-114, 2002.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Extraction/separation</p>	<p>JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley &amp; Sons, 2019.  FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.  NOHYNEK, Gerhard J. et al. Safety assessment of personal care products/cosmetics and their ingredients. Toxicology and applied pharmacology, v. 243, n. 2, p. 239-259, 2010.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Filling</p>	<p>JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley &amp; Sons, 2019.  FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.</p>

3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Heating/melting/boiling	JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley & Sons, 2019.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Labelling	FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Milling (crushing/kneading)	SAOUTER, Erwan; VAN HOOFF, Gert. A database for the life-cycle assessment of Procter & Gamble laundry detergents. The International Journal of Life Cycle Assessment, v. 7, n. 2, p. 103-114, 2002.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Mixing	JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley & Sons, 2019.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Packing/ Packaging / Wrapping	FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.
3030 Household & Personal Products Household Products 303010 Household Products 30301010 Personal Products 303020 Personal Products 30302010	Plastic parts molding / injection molding	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.

<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Pressing</p>	<p>European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.  CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Pumping</p>	<p>FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Reaction</p>	<p>Riazi B., et al. Life Cycle Environmental and Cost Implications of Isostearic Acid Production for Pharmaceutical and Personal Care Products, ACS Sustainable Chem. Eng. 7, 18, 15247–15258, 2019.  JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley &amp; Sons, 2019.  FUNG, H. K.; WIBOWO, Christianto; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.  NOHYNEK, Gerhard J. et al. Safety assessment of personal care products/cosmetics and their ingredients. Toxicology and applied pharmacology, v. 243, n. 2, p. 239-259, 2010.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Stamping</p>	<p>European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007.  CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.</p>

<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Tableting</p>	<p>SPITZ, Luis (Ed.). Soap manufacturing technology. Elsevier, 2016.  FUNG, H. K.; WIBOWO, Christiano; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Testing</p>	<p>JJEMBA, Patrick K. Pharma-ecology: the occurrence and fate of pharmaceuticals and personal care products in the environment. John Wiley &amp; Sons, 2019.</p>
<p>3030 Household &amp; Personal Products  Household Products 303010  Household Products 30301010  Personal Products 303020  Personal Products 30302010</p>	<p>Thermoforming</p>	<p>FUNG, H. K.; WIBOWO, Christiano; NG, K. M. Product-centered process synthesis and development: detergents. Chemical product design: toward a perspective through case studies, p. 239, 2008.</p>

x. Stationery (Paper/Card/Film, Writing, Equipment)

GICS Classification	Production Process Group	Processes	DATA SOURCE / REFERENCES
Housewares & Specialties 25201054	Adhesives	Adhesive Compounding	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201065	Adhesives	Calendering	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008.
Housewares & Specialties 25201057	Adhesives	Coating (solvent-based)	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201056	Adhesives	Coating (water-based dispersions)	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201060	Adhesives	Cooling (resins and adhesives)	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201061	Adhesives	Drying (resins and adhesives)	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International

			<p>journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009.</p> <p>CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.</p>
Housewares & Specialties 25201059	Adhesives	Hot Melt / Heating	<p>GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley &amp; Sons, 2008.</p> <p>PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009.</p> <p>CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.</p>
Housewares & Specialties 25201063	Adhesives	Packing and shipping	<p>GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley &amp; Sons, 2008.</p> <p>PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009.</p> <p>CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.</p>
Housewares & Specialties 25201051	Adhesives	Pelletizing / pelleting / pelletization / pelletising	<p>GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley &amp; Sons, 2008.</p> <p>PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009.</p> <p>CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.</p>
Housewares & Specialties 25201062	Adhesives	Slitting / rewinding	<p><a href="https://www.can-dotape.com/slitting/">https://www.can-dotape.com/slitting/</a></p> <p>GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley &amp; Sons, 2008.</p>
Housewares & Specialties 25201053	Adhesives	Unwinding/unspooling	<p>EDWARDS, Harry Wallace. Pollution Prevention Assessment for a Manufacturer of Pressure-sensitive Adhesive Tape. US Environmental Protection Agency, National Risk Management Research Laboratory, 1995.</p> <p>GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley &amp; Sons, 2008.</p> <p>CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.</p>

Housewares & Specialties 25201066	Adhesives	Washing and cleaning	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201064	Adhesives	Winding/rolling	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201050	Adhesives	Backing fabrication (hot-melting / extrusion / wather bath /stretching / rolling / cooling)	EDWARDS, Harry Wallace. Pollution Prevention Assessment for a Manufacturer of Pressure-sensitive Adhesive Tape. US Environmental Protection Agency, National Risk Management Research Laboratory, 1995.
Housewares & Specialties 25201058	Adhesives	Cross-linking / Curing	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201055	Adhesives	Degreasing	GIERENZ, Gerhard; KARMANN, Werner (Ed.). Adhesives and adhesive tapes. John Wiley & Sons, 2008. PACKHAM, D. E. Adhesive technology and sustainability. International journal of adhesion and adhesives, v. 29, n. 3, p. 248-252, 2009. CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201052	Adhesives	Trimming / Cutting	EDWARDS, Harry Wallace. Pollution Prevention Assessment for a Manufacturer of Pressure-sensitive Adhesive Tape. US Environmental Protection Agency, National Risk Management Research Laboratory, 1995.

Housewares & Specialties 25201064	Assembly	Cutting	KAUSHISH, J. P. Manufacturing processes. PHI Learning Pvt. Ltd., 2010. DAVIM, J. Paulo et al. (Ed.). Green manufacturing processes and systems. Berlin: Springer, 2013.
Housewares & Specialties 25201064	Assembly	Assembly (general)	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Housewares & Specialties 25201064	Assembly	Finishing - Painting	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Housewares & Specialties 25201064	Assembly	Finishing - Plating	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020. ZHANG, J. Bright Silver Plating of Deluxe Tableware. ELECTROPLATING AND FINISHING, v. 14, p. 13-14, 1995.
Housewares & Specialties 25201064	Assembly	Finishing - Spraying	Georgios Chronopoulos et al., Best Available Techniques (BAT) Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals, EUR 30475 EN, Publications Office of the European Union, Luxembourg, 2020.
Housewares & Specialties 25201064	Assembly	Forming (including punching)	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013.
Housewares & Specialties 25201064	Assembly	Heating	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Commission, 2013.
Housewares & Specialties 25201064	Assembly	Packing / Packaging and shipping	VERGHESE, Karli; LEWIS, Helen; FITZPATRICK, Leanne (Ed.). Packaging for sustainability. Springer Science & Business Media, 2012. Peeler, Tom. "The Ball-Point's Bad Beginnings." Invention & Technology, Winter 1996, p. 64.
Housewares & Specialties 25201064	Assembly	Pressing	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.

Housewares & Specialties 25201064	Assembly	Sanding	CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Assembly	Stamping	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Assembly	Welding	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Housewares & Specialties 25201064	Assembly	Coating/decorations	CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Beating/Refining	Hannu Paulapuro, Papermaking, Part 1: Stock Preparation and Wet End. Chapter 4 - Refining of chemical pulp fibres. Finland, 2008.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Bleaching	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996. Stanko J., Angus R. (2006) Paper Manufacture and Its Impact on the Aquatic Environment. Reviews of Environmental Contamination and Toxicology, vol 185. Springer, New York, NY.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Calendering / Rolling	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Coating	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.

Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Debarking of logs/chips	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Grinding or Chipping of logs	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Papermaking - stock preparation and sheet formation	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Printing	AYDEMIR, Cem; ÖZSOY, Samed. Environmental impact of printing inks and printing process. Journal of Graphic Engineering and Design, v. 11, n. 2, p. 11, 2020. POLLOCK, Doug; COULON, Remi. Life cycle assessment: of an inkjet print cartridge. In: Proceedings of the 1996 IEEE International Symposium on Electronics and the Environment. ISEE-1996. IEEE, 1996. p. 154-160.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Pulp Dewatering / Drying	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Pulp washing and screening	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Pulping / Digesting	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996. Stanko J., Angus R. (2006) Paper Manufacture and Its Impact on the

			Aquatic Environment. Reviews of Environmental Contamination and Toxicology, vol 185. Springer, New York, NY.
Paper Products 15105020 Housewares & Specialties 25201066	Paper/Card/Film	Wood sourcing, transporting and storage	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Compounding	CUNNINGHAM, Michael F. et al. Future green chemistry and sustainability needs in polymeric coatings. Green Chemistry, v. 21, n. 18, p. 4919-4926, 2019.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Drying	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Filling and capping	DAVIM, J. Paulo et al. (Ed.). Green manufacturing processes and systems. Berlin: Springer, 2013. Peeler, Tom. "The Ball-Point's Bad Beginnings." Invention & Technology, Winter 1996, p. 64.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Graphite processing	Fischler, George. Fountain Pens and Pencils. Schiffer Publishing, 1990. <a href="http://www.madehow.com/Volume-1/Pencil.html">http://www.madehow.com/Volume-1/Pencil.html</a> ENCKE, Frederick L. The chemistry and manufacturing of the lead pencil. Journal of Chemical Education, v. 47, n. 8, p. 575, 1970.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Ink batching	SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003. Peeler, Tom. "The Ball-Point's Bad Beginnings." Invention & Technology, Winter 1996, p. 64.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Metal parts cleaning and cutting	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Metal parts forming	Rainer Remu et al., Best Available Techniques (BAT) Reference Document for Iron and Steel Production, European Comission, 2013.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Mixing	DAVIM, J. Paulo et al. (Ed.). Green manufacturing processes and systems. Berlin: Springer, 2013. Peeler, Tom. "The Ball-Point's Bad Beginnings." Invention & Technology, Winter 1996, p. 64.

Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Planing	KAUSHISH, J. P. Manufacturing processes. PHI Learning Pvt. Ltd., 2010. DAVIM, J. Paulo et al. (Ed.). Green manufacturing processes and systems. Berlin: Springer, 2013.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Sandwiching/Clamping	KAUSHISH, J. P. Manufacturing processes. PHI Learning Pvt. Ltd., 2010. DAVIM, J. Paulo et al. (Ed.). Green manufacturing processes and systems. Berlin: Springer, 2013.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Shaping	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Metal parts stamping	SZUMERA, Jim; SZUMERA, James A. The metal stamping process: your product from concept to customer. Industrial Press Inc., 2003. Peeler, Tom. "The Ball-Point's Bad Beginnings." Invention & Technology, Winter 1996, p. 64.
Housewares & Specialties 25201064	Pencil, pens and other things used for writing	Pencil wood case preparation, sandwiching, glueing and pressing	Fischler, George. Fountain Pens and Pencils. Schiffer Publishing, 1990. <a href="http://www.madehow.com/Volume-1/Pencil.html">http://www.madehow.com/Volume-1/Pencil.html</a> ENCKE, Frederick L. The chemistry and manufacturing of the lead pencil. Journal of Chemical Education, v. 47, n. 8, p. 575, 1970.
Housewares & Specialties 25201064	Plastic parts	Mold / Mould making	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Plastic parts	Plastic parts molding / injection molding	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Plastic parts	Extrusion (single screw/ twin screw/ co-extrusion/ reactive extrusion / extrusion coating)	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Housewares & Specialties 25201064	Plastic parts	Heating	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.

Housewares & Specialties 25201064	Plastic parts	Lamination	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
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xi. Textiles (except MMF)

GICS classification -	Production Process Group	Process	DATA SOURCE / REFERENCES
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Packaging	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Ironing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Heat pressing (attaching interlining components)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Sewing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Cutting	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203010 Apparel, Accessories & Luxury Goods	Assembly / Apparel manufacturing / Garmenting process	Spreading or Laying	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Coating / Finishing	Extrusion	S. Feustel, S. Caba, M. Koch, Processing and Quality of Continuous Fiber Reinforced Thermoplastic by Direct Extrusion, 59th ILMENAU SCIENTIFIC COLLOQUIUM, Technische Universität Ilmenau, Germany, 2017. Freitas, D., Almeida, H.A., Bártolo, H. et al. Sustainability in extrusion-based additive manufacturing technologies. Prog Addit Manuf 1, 65–78 (2016).
25203030 Textiles	Coating / Finishing	Foaming	Song, M. S., et al. "Performance of Foam and Application in Foam Finishing of Textile." Advanced Materials Research, vol. 821–822, Trans Tech Publications, Ltd., Sept. 2013, pp. 661–664. Crossref, doi:10.4028/www.scientific.net/amr.821-822.661.

25203030 Textiles	Coating / Finishing	Forming / Composite forming	Yu W-Y, Long, A. C., Chapter 4 - Forming textile composites, In Woodhead Publishing Series in Textiles, Design and Manufacture of Textile Composites, 2005, Pages 149-180, ISBN 9781855737440.
25203030 Textiles	Coating / Finishing	Drying (finished textile)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Coating / Finishing	Embossing	Schift, H. et al., Surface structuring of textile fibers using roll embossing, Microelectronic Engineering, Vol. 83, Issues 4–9, 2006. Embossing: Decorative Finish for Textiles, Mr. Deepak Jadhav, Textile Excellence, Aug 1-15, 2009
25203030 Textiles	Coating / Finishing	Sueding / Emerising	R. Senthil Kumar, S. Sundaresan, Chapter 6 - Mechanical finishing techniques for technical textiles, In Woodhead Publishing Series in Textiles, Advances in the Dyeing and Finishing of Technical Textiles, 2013, Pages 135-153, ISBN 9780857094339. Sueding Of Cotton Fabrics, Technical Bulletin TRI 3010, Cotton Incorporated, 1992.
25203030 Textiles	Coating / Finishing	Calendering	R. Senthil Kumar, S. Sundaresan, Chapter 6 - Mechanical finishing techniques for technical textiles, In Woodhead Publishing Series in Textiles, Advances in the Dyeing and Finishing of Technical Textiles, 2013, Pages 135-153, ISBN 9780857094339.
25203030 Textiles	Coating / Finishing	Anti-static coating	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Coating / Finishing	Crease Resistance coating	R. Senthil Kumar, S. Sundaresan, Chapter 6 - Mechanical finishing techniques for technical textiles, In Woodhead Publishing Series in Textiles, Advances in the Dyeing and Finishing of Technical Textiles, 2013, Pages 135-153, ISBN 9780857094339.
25203030 Textiles	Coating / Finishing	Flame Retardant coating	Yasin, S.; Behary, N.; Curti, M.; Rovero, G. Global Consumption of Flame Retardants and Related Environmental Concerns: A Study on Possible Mechanical Recycling of Flame Retardant Textiles. <i>Fibers</i> 2016, 4, 16. <a href="https://doi.org/10.3390/fib4020016">https://doi.org/10.3390/fib4020016</a> Waijers S.L. et al. Persistence, Bioaccumulation, and Toxicity of Halogen-Free Flame Retardants. In: Whitacre D. (eds) <i>Reviews of Environmental Contamination and Toxicology. Reviews of Environmental Contamination and Toxicology (Continuation of Residue Reviews)</i> , vol 222. Springer, New York, NY, 2013. Malucelli, G. Chapter 9 - Textile finishing with biomacromolecules: A low environmental impact approach in flame retardancy, In <i>The Textile Institute Book Series, The Impact and Prospects of Green Chemistry for Textile Technology</i> , Woodhead Publishing, 2019, Pages 251-279, ISBN 9780081024911.
25203030 Textiles	Coating / Finishing	Stonewash / Denim Stonewash	Choudhury A. K. R. <i>Principles of Textile Finishing</i> , 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.

25203030 Textiles	Coating / Finishing	Sandwash / Sandblasting/ Abrasive blasting	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Easy-care coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. Xie, G., Cui, J., Zhai, Z. et al. Distribution characteristics of trifluoroacetic acid in the environments surrounding fluorochemical production plants in Jinan, China. Environ Sci Pollut Res 27, 983–991, 2020. L. Ahrens and M. Bundschuh, Fate and effects of polyfluoroalkyl and perfluoroalkyl substances, Environ Toxicol Chem 33, 2014.
25203030 Textiles	Coating / Finishing	Water repellency coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. Xie, G., Cui, J., Zhai, Z. et al. Distribution characteristics of trifluoroacetic acid in the environments surrounding fluorochemical production plants in Jinan, China. Environ Sci Pollut Res 27, 983–991, 2020. L. Ahrens and M. Bundschuh, Fate and effects of polyfluoroalkyl and perfluoroalkyl substances, Environ Toxicol Chem 33, 2014.
25203030 Textiles	Coating / Finishing	Softening	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Moth proofing coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Bactericidal coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. L. Ruess, I.K. Schmidt, A. Michelsen, S. Jonasson. Responses of nematode species composition to factorial addition of carbon, fertiliser, bactericide and fungicide at two sub-arctic sites. Nematology, 4, 2002.
25203030 Textiles	Coating / Finishing	Fungicidal coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. Yang C, Hamel C, Vujanovic V, Gan Y. Fungicide: modes of action and possible impact on nontarget microorganisms. Inter Schol Res Net ISRN Ecol 130289:1–8, 2011.
25203030 Textiles	Coating / Finishing	Anti-felt coating	Mori, M., Matsudaira, M. Comparison of woolen eco-friendly anti-felting treatment with classic anti-felting procedures. Text. Res. J. 83 (2), 208–215, 2013
25203030 Textiles	Coating / Finishing	Filling	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Stiffening	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.

25203030 Textiles	Coating / Finishing	Soil resistance / Soil release coating	S. Pavlidou, R. Paul, Chapter 3 - Moisture management and soil release finishes for textiles, In Woodhead Publishing Series in Textiles, Functional Finishes for Textiles, Woodhead Publishing, 2015.
25203030 Textiles	Coating / Finishing	Anti-pilling coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Peaching / polishing	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Non-slip coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Oil and water proofing / absorbency coating	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Colour fastness improvement coating	Fang, Y. et al. Eco-friendly colorization of textile originating from polydopamine nanofilm structural color with high colorfastness, Journal of Cleaner Production, Volume 295, 2021. Yaman, N., Ozdogan, E. and Seventekin, N. Improvement Fastnesses and Color Strength of Pigment Printed Textile Fabric, Journal of Engineered Fibers and Fabrics, 2012.
25203030 Textiles	Coating / Finishing	Plasma treatment (coating)	Maryam Naebe, Abu Naser Md Ahsanul Haque, Aminoddin Haji, Plasma-assisted antimicrobial finishing of textiles: A review, Engineering, 2021. Andrea Zille, Chapter 6 - Plasma technology in fashion and textiles, In Woodhead Publishing Series in Textiles, Sustainable Technologies for Fashion and Textiles, ISBN 9780081028674, 2020. Plasma Technologies for Textile and Apparel, Woodhead Publishing India in Textiles, S. K. Nema, P. B. Jhala, WPI India, ISBN 9380308558, 2014.
25203030 Textiles	Coating / Finishing	Handwork / Scraping / Whiskering	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Laser etching / Laser marking	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Resin curing	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Spraying (finishing)	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Coating / Finishing	Ozone finishing / Ozone fading	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Printing	Flat screen printing	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. Hawkyard C.J., Chapter 2 - Screen printing in Textile printing. Revised 2nd ed. West Yorkshire : Society of Dyers and Colourists, ISBN: 0901956791 , 2003.

25203030 Textiles	Printing	Rotary screen printing	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017. Hawkyard C.J., Chapter 2 - Screen printing in Textile printing. Revised 2nd ed. West Yorkshire : Society of Dyers and Colourists, ISBN: 0901956791 , 2003.
25203030 Textiles	Printing	Roller printing	Miles, L. W. C. Textile printing. Revised 2nd ed. West Yorkshire : Society of Dyers and Colourists, ISBN: 0901956791 , 2003.
25203030 Textiles	Printing	Jet printing	Christina Cie, Ink Jet Textile Printing, Woodhead Publishing Series in Textiles, Elsevier, ISBN: 9780857099235, 2015.
25203030 Textiles	Textile Preparation / Mill	Fulling / Milling	Miko Flohr, Fulling, Oxford Classical Dictionary, <a href="https://doi.org/10.1093/acrefore/9780199381135.013.8183">https://doi.org/10.1093/acrefore/9780199381135.013.8183</a> Published online: 26 October 2017.
25203030 Textiles	Textile Preparation / Mill	Raising / Napping	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Singeing / Shearing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Desizing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Scouring	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Bleaching	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Mercerizing/ Decating / Mercerisation	Choudhury A. K. R. Principles of Textile Finishing, 1st Edition, The Textile Institute Book Series, Woodhead Publishing, eBook ISBN: 9780081006610, 2017.
25203030 Textiles	Textile Preparation / Mill	Weaving	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Textile Preparation / Mill	Knitting	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.

25203030 Textiles	Washing	Washing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Washing	Dry cleaning	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Drying	Centrifugal drying / Centrifugal extraction / Centrifugal hydro-extractor	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Drying	Evaporation / Evaporative drying	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Processing /Drying	Mangling	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Processing /Drying	Squeezing / Pressing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Processing /Drying	Suction / Suction Drum	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.

25203030 Textiles	Processing /Drying	Stenter / Hot air drying	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Processing /Drying	Hot-flue dryer / Conveyor fabric dryer / Air dryer	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore.
25203030 Textiles	Processing /Drying	Contact dryer (heated cylinder)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. (2018) Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore. European Commission.Reference Document on Best Available Techniques for the Textile Industry (BREF), 2003.
25203030 Textiles	Dyeing	Air-Dye Technology / Air-Dyeing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018.
25203030 Textiles	Dyeing	Batch Dyeing / Exhaust Dyeing / Discontinuous Dyeing / Direct Dyeing / Coordinate dyeing/ Stock Dyeing / Solution Dyeing / Skein (Hank) Dyeing	Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Lellis, B. et al., Effects of textile dyes on health and the environment and bioremediation potential of living organisms, Biotechnology Research and Innovation, Vol. 3, Issue 2, 2019.

25203030 Textiles	Dyeing	Continuous dyeing / Pad Steam dyeing / Pad dry dyeing / Thermosol	Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Lellis, B. et al., Effects of textile dyes on health and the environment and bioremediation potential of living organisms, Biotechnology Research and Innovation, Vol. 3, Issue 2, 2019.
25203030 Textiles	Dyeing	Semi-continuous dyeing / Pad-batch / Pad-Jig / Beck Dyeing / Jig Dyeing	Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018. The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Lellis, B. et al., Effects of textile dyes on health and the environment and bioremediation potential of living organisms, Biotechnology Research and Innovation, Vol. 3, Issue 2, 2019.
25203030 Textiles	Dyeing	Dope Dyeing /Spun Dyeing / Solution Pigmenting	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. < <a href="https://textilefocus.com/textile-dyeing/">https://textilefocus.com/textile-dyeing/</a> >
25203030 Textiles	Dyeing	Gel dyeing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Lellis, B. et al., Effects of textile dyes on health and the environment and bioremediation potential of living organisms, Biotechnology Research and Innovation, Vol. 3, Issue 2, 2019.
25203030 Textiles	Dyeing	Foam Dyeing	Lellis, B. et al., Effects of textile dyes on health and the environment and bioremediation potential of living organisms, Biotechnology Research and Innovation, Vol. 3, Issue 2, 2019. Capponi M. <i>et al</i> , Foam Technology in Textile Processing, Review of Progress in Coloration and Related Topics, Vol 12, 1982.
25203030 Textiles	Dyeing	Supercritical Fluid Dyeing	Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018.
25203030 Textiles	Dyeing	Top dyeing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. < <a href="https://textilefocus.com/textile-dyeing/">https://textilefocus.com/textile-dyeing/</a> >

25203030 Textiles	Dyeing	Tow dyeing	Tom Cassidy, Parikshit Goswami, Textile and Clothing Design Technology 1st Edition, ISBN 9780367572587, 2017.
25203030 Textiles	Dyeing	Package Dyeing / Warp-beam Dyeing / Beam Dyeing	Introduction to dyeing and dyehouse automation. (2014). Modelling, Simulation and Control of the Dyeing Process, 1–30. doi:10.1533/9780857097583.1 < <a href="https://textilefocus.com/textile-dyeing/">https://textilefocus.com/textile-dyeing/</a> > Kumar S. P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018. < <a href="https://www.cottonworks.com/encyclopedia-item/beam-dyeing/">https://www.cottonworks.com/encyclopedia-item/beam-dyeing/</a> >
25203030 Textiles	Dyeing	Unit Dyeing / Garment Dyeing / Piece Dyeing / Beck Dyeing /Winch Dyeing / Box Dyeing	<a href="https://textilefocus.com/textile-dyeing/">https://textilefocus.com/textile-dyeing/</a> The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
25203030 Textiles	Dyeing	Plasma Dyeing	Senthil Kumar P., Yaashikaa P.R. Sustainable Dyeing Techniques. In: Muthu S. (eds) Sustainable Innovations in Textile Chemical Processes. Textile Science and Clothing Technology. Springer, Singapore, 2018. Andrea Zille, Chapter 6 - Plasma technology in fashion and textiles, In Woodhead Publishing Series in Textiles, Sustainable Technologies for Fashion and Textiles, ISBN 9780081028674, 2020.
25203030 Textiles	Dyeing	Cross dyeing / Union dyeing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837< <a href="http://ecoursesonline.iasri.res.in/mod/page/view.php?id=29934">http://ecoursesonline.iasri.res.in/mod/page/view.php?id=29934</a> >
25203030 Textiles	Dyeing	Vaccum Impregnation	<a href="http://ecoursesonline.iasri.res.in/mod/page/view.php?id=29931">http://ecoursesonline.iasri.res.in/mod/page/view.php?id=29931</a>
25203030 Textiles	Embroidery	Embroidery (machine)	Manthriratne, P. A. P. H. "An Investigation of Traditional Embroidery for Sustainable Design in Sri Lanka." The Built & Human Environment Review, vol. 7, no. 1, 2014.
25203030 Textiles	Embroidery	Embroidery (hand)	Manthriratne, P. A. P. H. "An Investigation of Traditional Embroidery for Sustainable Design in Sri Lanka." The Built & Human Environment Review, vol. 7, no. 1, 2014.
25203030 Textiles	Spinning mill (natural fiber)	Ginning	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Opening and cleaning	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition),

			Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Scouring and carbonizing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Robinson, B. 1991, A Basic Guide To Raw Wool Scouring, IWS Technical Information Letter, TIL/ET-6, 1991. Wang, C. and Pailthorpe, M. T. 1989, 'An investigation of wool hydrolysis in conventional carbonising', Textile Research Journal, p. 232.
25203030 Textiles	Spinning mill (natural fiber)	Carding	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Drawing (draw frame)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Combing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Roving / simplex	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.

25203030 Textiles	Spinning mill (natural fiber)	Spinning / Rotor Spinning / Airjet Spinning / Ring Spinning	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Winding	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Warping	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.
25203030 Textiles	Spinning mill (natural fiber)	Slashing	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837. Subrata Das, Dr. Environmental Aspects in Textile Industry: Ecological Hazards and Remedial Measures - A study on environmental impact of textile industry and its remedies, 2019.

xii. Toys and Games

GICS classification	Production Process Group	Process	DATA SOURCE / REFERENCES
Leisure Products 252020 Leisure Products 25202010	Paper and cardboard	Bleaching (paper and cardboard)	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Leisure Products 252020 Leisure Products 25202010	Paper and cardboard	Coating (paper and cardboard)	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.

Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Cutting/Sewing (fabric)	The Textile Institute Book Series, Subramanian Senthilkannan Muthu, Assessing the Environmental Impact of Textiles and the Clothing Supply Chain (Second Edition), Woodhead Publishing, 2020, ISBN 9780128197837.
Leisure Products 252020 Leisure Products 25202010	Paper and cardboard	Finishing (paper and cardboard)	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996.
Leisure Products 252020 Leisure Products 25202010	Printing	Flat-screen/ Rotary/ Roller and Jet Printing	AYDEMIR, Cem; ÖZSOY, Samed. Environmental impact of printing inks and printing process. Journal of Graphic Engineering and Design, v. 11, n. 2, p. 11, 2020. POLLOCK, Doug; COULON, Remi. Life cycle assessment: of an inkjet print cartridge. In: Proceedings of the 1996 IEEE International Symposium on Electronics and the Environment. ISEE-1996. IEEE, 1996. p. 154-160.
Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	General assembly	HAESER, Lucas Felipe; VIZIOLI, Renato; KAMINSKI, Paulo Carlos. Comparative analysis of creative process methodologies for products development—a case study of the large scale toys production. Product: Management and Development, v. 13, n. 1, p. 22-30, 2014.
Leisure Products 252020 Leisure Products 25202010	Plastic	Heating	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020. DĘBSKA, Kamila; SYGUT, Piotr. The analysis of the toys production process quality. Archiwum Wiedzy Inżynierskiej, v. 1, 2016.
Leisure Products 252020 Leisure Products 25202010	Plastic	Molding (plastic), including injection, extrusion	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Leisure Products 252020 Leisure Products 25202010	Packing	Packing and shipping	MARGALLO, María et al. Combining technical, environmental, social and economic aspects in a life-cycle ecodesign methodology: An integrated approach for an electronic toy. Journal of Cleaner Production, v. 278, p. 123452, 2021.

Leisure Products 252020 Leisure Products 25202010	Plastic / Paper and Cardboard / Wood / Bamboo / Textile fabric	Pressing /Pressurising	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Leisure Products 252020 Leisure Products 25202010	Paper and cardboard	Pulping (paper and cardboard)	FAO FORESTRY PAPER 129 - Environmental impact assessment and environmental auditing in the pulp and paper industry. Chap. 3 - The EIA in the Pulp and Paper Industry, 1996. Stanko J., Angus R. (2006) Paper Manufacture and Its Impact on the Aquatic Environment. Reviews of Environmental Contamination and Toxicology, vol 185. Springer, New York, NY.
Leisure Products 252020 Leisure Products 25202010	Wood / Bamboo	Sawing / Cutting	<a href="https://www.britannica.com/topic/furniture-industry/The-production-process">https://www.britannica.com/topic/furniture-industry/The-production-process</a> Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels, 2016.
Leisure Products 252020 Leisure Products 25202010	Wood / Bamboo	Edge Banding/ Veneering / Bending	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Filling	Kristine Raunkjær Stubdrup, Panagiotis Karlis, Serge Roudier, Luis Delgado Sancho; Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels; EUR 27732 EN; doi:10.2791/21807, 2016.
Leisure Products 252020 Leisure Products 25202010	Wood / Bamboo	Carving	European Comission, Reference Document on Best Available Techniques in the Production of Polymers, August 2007. CRAWFORD, Roy James; MARTIN, Patrick J. Plastics engineering. Butterworth-Heinemann, 2020.
Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Cutting	DĘBSKA, Kamila; SYGUT, Piotr. The analysis of the toys production process quality. Archiwum Wiedzy Inżynierskiej, v. 1, 2016.

Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Fitting/ Jointing	DĘBSKA, Kamila; SYGUT, Piotr. The analysis of the toys production process quality. <i>Archiwum Wiedzy Inżynierskiej</i> , v. 1, 2016.
Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Glueing / Bonding	D.E. Packham, Adhesive technology and sustainability, <i>International Journal of Adhesion and Adhesives</i> , Volume 29, Issue 3, 2009
Leisure Products 252020 Leisure Products 25202010	Assembly / Plastic / Paper and Cardboard / Wood / Bamboo / Soft toys / Fabric	Installation of electronic circuits/ Chips / Batteries / Lamps / Sound Speakers	DĘBSKA, Kamila; SYGUT, Piotr. The analysis of the toys production process quality. <i>Archiwum Wiedzy Inżynierskiej</i> , v. 1, 2016. MARGALLO, María et al. Combining technical, environmental, social and economic aspects in a life-cycle ecodesign methodology: An integrated approach for an electronic toy. <i>Journal of Cleaner Production</i> , v. 278, p. 123452, 2021.
Leisure Products 252020 Leisure Products 25202010	Plastic / Paper and Cardboard / Wood / Bamboo / Textile fabric	Raw materials reception / handling / storage	BREF (2006) Reference document on Best Available Techniques (BAT) on emission from storage. European Commission, DG JRC, Sevilla, Spain.
Leisure Products 252020 Leisure Products 25202010	Plastic / Paper and Cardboard / Wood / Bamboo / Textile fabric	Raw materials selection, mixing and preparation	BREF (2006) Reference document on Best Available Techniques (BAT) on emission from storage. European Commission, DG JRC, Sevilla, Spain.

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