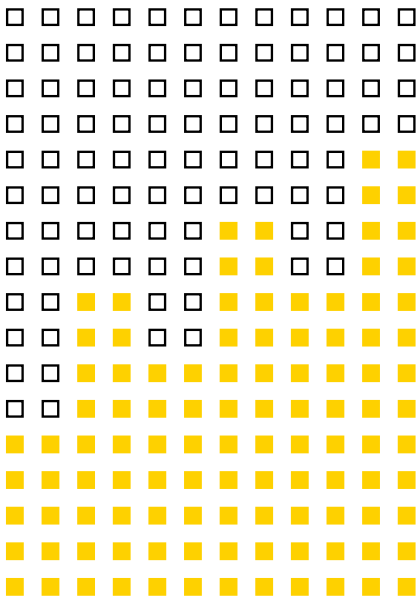




# KEY STATISTICS **2018**

European pulp & paper industry



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# Introduction

Welcome to the latest issue of CEPI's Key Statistics. This booklet contains the key statistics necessary to give a clear picture of the performance of the European pulp and paper industry in 2018.

The statistics included in this booklet are a compilation of data received from the National Associations which are CEPI members, under the auspices of CEPI's Statistics Network. Some additional sources, such as Eurostat, have been used where necessary and relevant. Extra statistical information is accessible online to members on CEPI's Members Area website at <http://www.cepi.org/members/statistics> and to non-members by subscription<sup>1</sup>.

For the first time, some data about speciality paper and board will be released. A description of this kind of paper and board can be found on page 13.

The Confederation of European Paper Industries (CEPI) is a Brussels-based non-profit making organisation founded in 1992, which represents the European pulp and paper industry towards

the European Institutions. Through its member associations, CEPI also represents approximately 500 pulp, paper and board producing companies across Europe, ranging from small and medium-sized enterprises to multinationals (counting companies with a presence in more than one CEPI country only once). It represents 92% of the European<sup>2</sup> pulp and paper industry in terms of production. The pulp and paper industry provides more than 180 000 jobs in Europe directly, and 1.5 million in the value chain. It has a turnover of 90 billion euros and adds 20 billion euros to the EU GDP.

It is strong in export markets, with an export rate of 22% of its paper and board production.

## Members of CEPI in 2018

The National Associations of the 18 following countries are CEPI members: Austria, Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.



### Data quality and compliance with EU competition rules.

Responsibility for the collection and management of statistical data lies with the CEPI statistics department, which is constantly working to improve the quality of the data reported. In order to further increase the reliability and credibility of the data reported, CEPI has commissioned Deloitte to issue a limited assurance statement on the data quality rating that CEPI carried out on its core indicators in the statistics report. The limited assurance statement is available at <http://www.cepi.org/topics/statistics>

The compliance of the data produced with the EU competition rules is periodically checked by a law firm.

<sup>1</sup> More statistics reports (annual, quarterly and monthly) are available by subscription:  
- Please visit our website <http://www.cepi.org/topics/subscribe-to-statistics>  
- Or contact Ariane Crèvecoeur – Statistics Manager – [a.crevecoeur@cepi.org](mailto:a.crevecoeur@cepi.org)  
Marjukka Rautavirta – Statistics Officer – [m.rautavirta@cepi.org](mailto:m.rautavirta@cepi.org)

<sup>2</sup> Europe minus the Russian Federation



## Key Figures

### CEPI Pulp and Paper Industry

	1991	2000	2005	2010	2017	2018	% Change 2018/2017	% Change 2018/2000
<b>Industry Structure</b>								
Number of Companies <sup>1</sup>	1 082	979	881	725	676	<b>685</b>	<b>1.3</b>	<b>-30.0</b>
Number of Mills	1 570	1 309	1 224	992	888	<b>897</b>	<b>1.0</b>	<b>-31.5</b>
Pulp	296	233	218	172	152	<b>151</b>	<b>-0.7</b>	<b>-35.2</b>
Paper & Board	1 274	1 076	1 006	820	736	<b>746</b>	<b>1.4</b>	<b>-30.7</b>
Number of Paper Machines	2 182	1 858	1 725	1 393	1 250	<b>1 255</b>	<b>0.4</b>	<b>-32.5</b>
Employment	411 113	279 987	246 785	194 894	179 072	<b>180 852</b>	<b>1.0</b>	<b>-35.4</b>
Turnover <sup>2</sup> (Million Euros)	n.a.	79 388	74 537	75 790	87 397	<b>90 000</b>	<b>3.0</b>	<b>13.4</b>
Investments <sup>2</sup> (Million Euros)	n.a.	5 637	5 318	2 913	5 500	<b>5 500</b>	<b>0.0</b>	<b>-2.4</b>
Added Value <sup>2</sup> (Million Euros)	n.a.	24 494	18 154	16 560	19 000	<b>20 000</b>	<b>5.3</b>	<b>-18.3</b>
<b>Total Pulp<sup>3</sup> ('000 Tonnes)</b>								
Production Capacity	39 584	43 842	47 247	44 189	42 515	<b>42 792</b>	<b>0.7</b>	<b>-2.4</b>
Operating Rate	85.4%	91.2%	88.1%	87.6%	89.4%	<b>89.5%</b>	<b>0.1</b>	<b>-1.6</b>
Production	33 807	39 962	41 602	38 695	38 008	<b>38 304</b>	<b>0.8</b>	<b>-4.1</b>
Total Deliveries	n.a.	40 556	42 221	39 612	42 285	<b>42 507</b>	<b>0.5</b>	<b>4.8</b>
CEPI Internal Deliveries	n.a.	39 224	40 150	37 045	37 819	<b>38 178</b>	<b>1.0</b>	<b>-2.7</b>
Consumption <sup>7</sup> (Apparent)	37 815	46 377	47 492	43 849	42 789	<b>43 720</b>	<b>2.2</b>	<b>-5.7</b>
<b>Market Pulp ('000 Tonnes)</b>								
Production	9 314	11 423	13 142	12 706	14 192	<b>14 419</b>	<b>1.6</b>	<b>26.2</b>
Exports to Outside CEPI	n.a.	1 332	2 071	2 567	4 466	<b>4 329</b>	<b>-3.1</b>	<b>225.0</b>
Imports from Outside CEPI	n.a.	7 924	7 961	7 721	9 247	<b>9 746</b>	<b>5.4</b>	<b>23.0</b>
Trade Balance with Outside CEPI	n.a.	-6 592	-5 890	-5 154	-4 781	<b>-5 417</b>	<b>13.3</b>	<b>17.8</b>
Consumption <sup>7</sup> (Apparent)	n.a.	18 015	19 032	17 860	18 973	<b>19 836</b>	<b>4.5</b>	<b>10.1</b>
Exports/Production	n.a.	11.7%	15.8%	20.2%	31.5%	<b>30.0%</b>	<b>-1.4</b>	<b>18.4</b>
Imports/Consumption	n.a.	44.0%	41.8%	43.2%	48.7%	<b>49.1%</b>	<b>0.4</b>	<b>5.1</b>
<b>Paper &amp; Board ('000 Tonnes)</b>								
Production Capacity	73 280	97 658	109 801	103 714	100 468	<b>101 466</b>	<b>1.0</b>	<b>3.9</b>
Operating Rate	88.8%	93.0%	89.5%	91.7%	91.8%	<b>90.8%</b>	<b>-0.9</b>	<b>-2.2</b>
Production	65 052	90 823	98 259	95 065	92 208	<b>92 180</b>	<b>0.0</b>	<b>1.5</b>
CEPI Internal Deliveries	n.a.	78 796	84 661	80 263	78 096	<b>78 105</b>	<b>0.0</b>	<b>-0.9</b>
Exports to Outside CEPI	n.a.	13 887	17 793	19 164	20 369	<b>20 583</b>	<b>1.1</b>	<b>48.2</b>
Imports from Outside CEPI	n.a.	6 383	5 903	5 783	5 574	<b>5 756</b>	<b>3.3</b>	<b>-9.8</b>
Trade Balance with Outside CEPI	n.a.	7 504	11 890	13 381	14 795	<b>14 827</b>	<b>0.2</b>	<b>97.6</b>
Consumption <sup>7</sup> (Apparent)	60 102	82 065	86 369	81 684	77 414	<b>77 353</b>	<b>-0.1</b>	<b>-5.7</b>
Exports/Production	n.a.	15.3%	18.1%	20.2%	22.1%	<b>22.3%</b>	<b>0.2</b>	<b>7.0</b>
Imports/Consumption	n.a.	7.8%	6.8%	7.1%	7.2%	<b>7.4%</b>	<b>0.2</b>	<b>-0.3</b>

	1991	2000	2005	2010	2017	2018	% Change 2018/2017	% Change 2018/2000
<b>Wood ('000 m<sup>3</sup>)</b>								
Consumption	120 274	148 093	153 380	148 901	149 381	<b>154 880</b>	<b>3.7</b>	<b>4.6</b>
Hardwood	30 410	40 048	41 337	38 119	41 099	<b>42 811</b>	<b>4.2</b>	<b>6.9</b>
Softwood	89 863	108 046	112 043	110 782	108 282	<b>112 069</b>	<b>3.5</b>	<b>3.7</b>
Imports/Consumption	12.8%	17.1%	19.2%	17.1%	13.5%	<b>15.7%</b>	<b>2.2</b>	<b>-1.4</b>
Domestic/Consumption	87.2%	82.9%	80.8%	82.9%	86.5%	<b>84.3%</b>	<b>-2.2</b>	<b>1.4</b>
<b>Paper for Recycling ('000 Tonnes)</b>								
Collection	25 452	43 658	53 100	55 917	56 861	<b>56 695</b>	<b>-0.3</b>	<b>29.9</b>
Utilisation	25 360	40 922	46 745	48 122	48 338	<b>48 791</b>	<b>0.9</b>	<b>19.2</b>
Exports to Outside CEPI	n.a.	3 751	7 698	9 592	10 623	<b>9 972</b>	<b>-6.1</b>	<b>165.8</b>
Imports from Outside CEPI	n.a.	1 015	1 343	1 796	2 099	<b>2 068</b>	<b>-1.5</b>	<b>103.7</b>
Trade Balance with Outside CEPI	n.a.	2 736	6 355	7 795	8 523	<b>7 904</b>	<b>-7.3</b>	<b>188.9</b>
Utilisation Rate	39.0%	45.1%	47.6%	50.6%	52.4%	<b>52.9%</b>	<b>0.5</b>	<b>7.9</b>
Exports/Collection	n.a.	8.6%	14.5%	17.2%	18.7%	<b>17.6%</b>	<b>-1.1</b>	<b>9.0</b>
Imports/Utilisation	n.a.	2.5%	2.9%	3.7%	4.3%	<b>4.2%</b>	<b>-0.1</b>	<b>1.8</b>
<b>Recycling Rate in Europe<sup>4</sup></b>								
Recycling Rate	40.3%	51.8%	61.8%	68.5%	72.4%	<b>71.6%</b>	<b>-0.8</b>	<b>19.8</b>
<b>Non-Fibrous Materials ('000 Tonnes)</b>								
Consumption	9 504	15 603	16 556	16 213	13 758	<b>13 508</b>	<b>-1.8</b>	<b>-13.4</b>
<b>Energy and Environment<sup>5</sup></b>								
Fuels Consumption ('000 Tj)	930	1 141	1 269	1 282	1 188	<b>n.a.</b>		
Biomass Use (%) of Total FC	44.4	49.3	50.1	52.9	59.8	<b>n.a.</b>		
Electricity Consumption (GWh)	86 527	110 424	113 874	113 137	97 338	<b>n.a.</b>		
% of Electricity produced through CHP <sup>6</sup>	88.0	90.4	94.4	95.4	96.3	<b>n.a.</b>		
CO <sub>2</sub> Direct Emissions (Mega Tonnes)	39.05	41.94	43.24	37.83	32.22	<b>31.78</b>	<b>-1.4</b>	<b>-24.2</b>
Specific CO <sub>2</sub> Emissions (kt CO <sub>2</sub> / kt of product)	0.54	0.42	0.39	0.35	0.30	<b>0.30</b>	<b>-1.5</b>	<b>-29.8</b>

<sup>1</sup> 500 groups or corporations in 2018, when considering the entities established in one or several countries that are not bound together by legal and/or financial links.

<sup>2</sup> 2017 and 2018 figures are based on members' data, Eurostat and estimates for some countries.

<sup>3</sup> Total Pulp = Market Pulp + Integrated Pulp.

<sup>4</sup> Europe means EU-28 countries plus Norway and Switzerland.

<sup>5</sup> Hungary, Romania and Slovenia are not included in Energy data, except for CO<sub>2</sub> emissions.

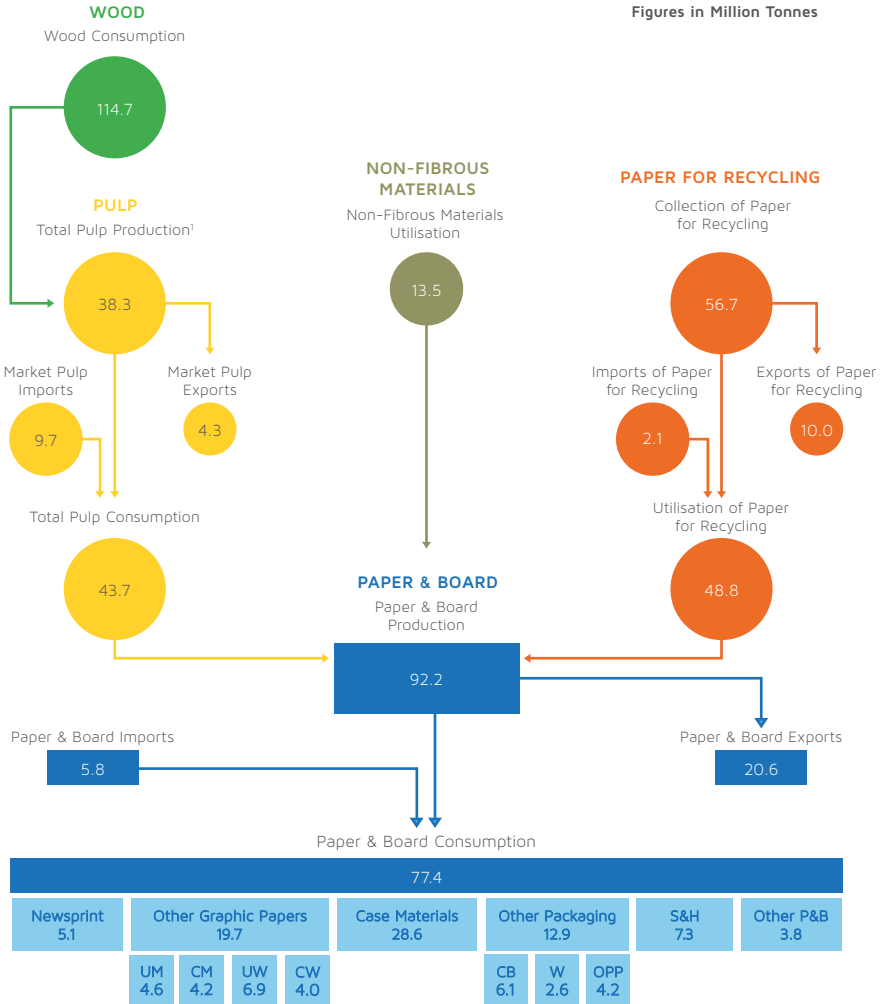
<sup>6</sup> CHP: combined heat and power (compared to total on-site electricity generation).

<sup>7</sup> CEPI Apparent Consumption = production - exports to outside CEPI + imports from outside CEPI.

# From Raw Materials to Paper

## CEPI Pulp and Paper Industry in 2018

Figures in Million Tonnes

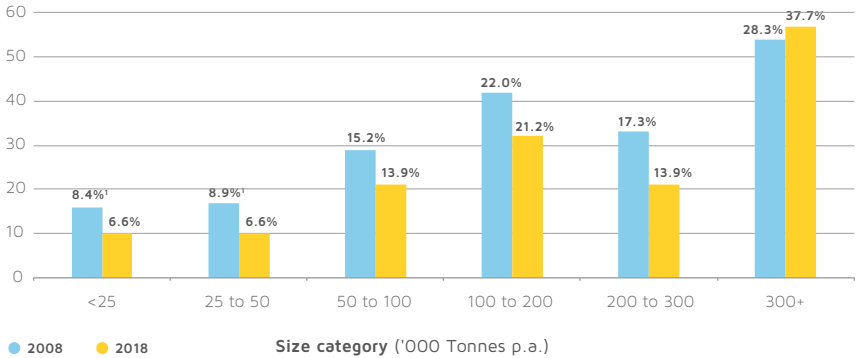


Paper & Board Consumption = Production + Imports from outside CEPI - Exports to outside CEPI  
 UM = Uncoated Mechanical - CM = Coated Mechanical - UW = Uncoated Woodfree - CW = Coated Woodfree  
 CB = Carton Board - W = Wrappings - OPP = Other Paper & Board for Packaging  
 S&H = Sanitary and Household

<sup>1</sup> of which Integrated Pulp 23.9 Million Tonnes

## Number of CEPI Pulp Mills by Volume in 2008 and 2018

Number of Pulp Mills

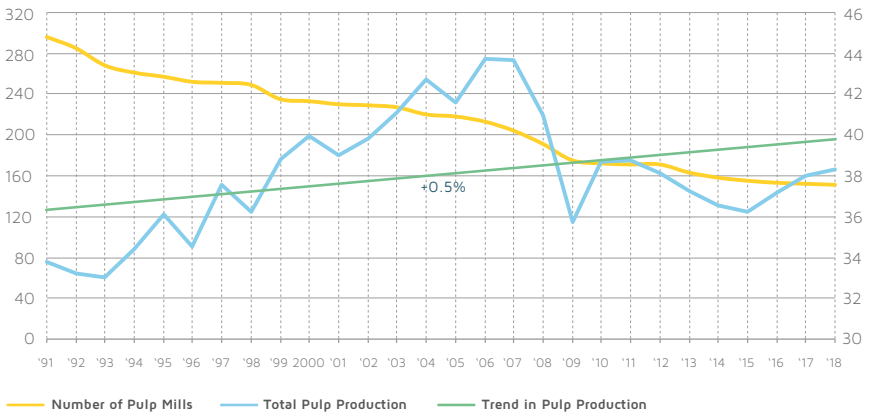


<sup>1</sup>Share of Total Number of Mills

## Number of CEPI Pulp Mills and Total Pulp Production

Number of Pulp Mills

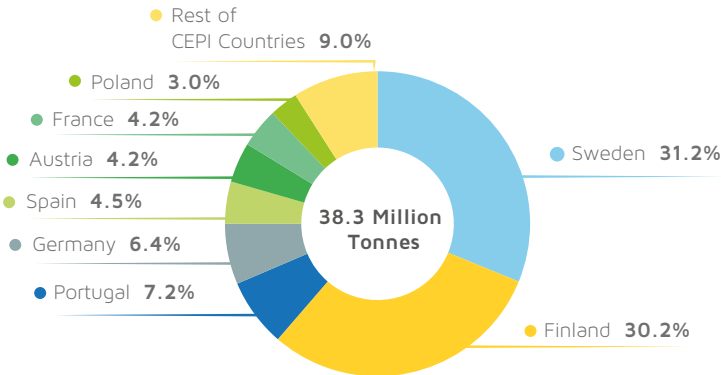
Total Pulp Production (Million Tonnes)



### CEPI Total Pulp<sup>1</sup> Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2017	2018	% change 2018/2017	2017	2018	% change 2018/2017
<b>Mechanical &amp; Semi-Chemical</b>	10 094	<b>10 161</b>	0.7	10 145	<b>10 299</b>	1.5
Sulphite Pulp	1 702	<b>1 678</b>	-1.4	1 505	<b>1 440</b>	-4.3
Sulphate Pulp	25 924	<b>26 185</b>	1.0	30 825	<b>31 680</b>	2.8
<b>Total Chemical Pulp</b>	27 626	<b>27 863</b>	0.9	32 330	<b>33 120</b>	2.4
<b>Total Woodpulp</b>	37 720	<b>38 025</b>	0.8	42 475	<b>43 419</b>	2.2
<b>Other Pulp</b>	288	<b>279</b>	-3.1	313	<b>301</b>	-3.9
<b>Total Pulp<sup>1</sup></b>	<b>38 008</b>	<b>38 304</b>	<b>0.8</b>	<b>42 789</b>	<b>43 720</b>	<b>2.2</b>

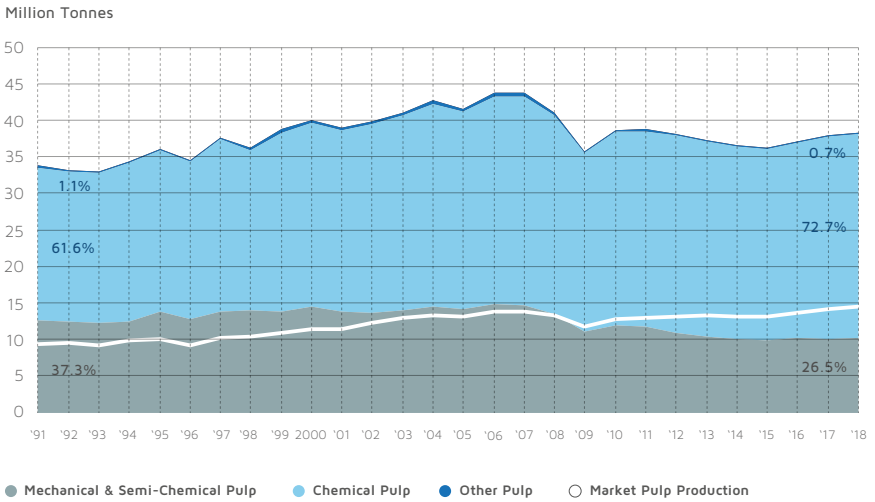
### CEPI Total Pulp<sup>1</sup> Production by Country in 2018



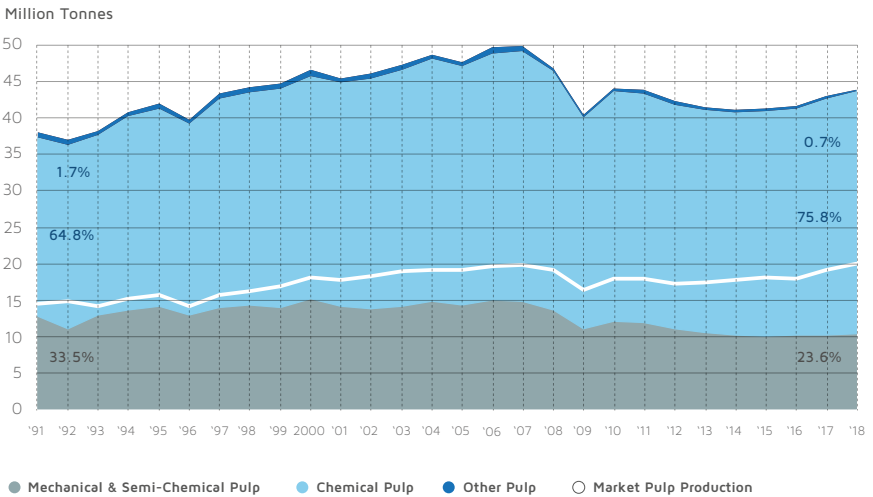
<sup>1</sup> Total Pulp = Market Pulp + Integrated Pulp



### CEPI Total Pulp<sup>1</sup> Production by Grade and Market Pulp Production

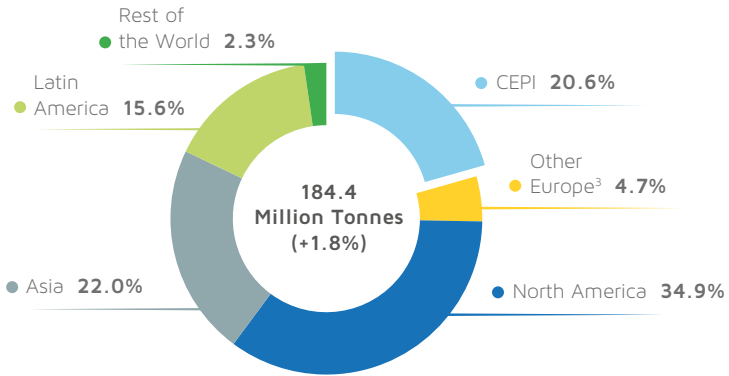


### CEPI Total Pulp<sup>1</sup> Consumption by Grade and Market Pulp Consumption

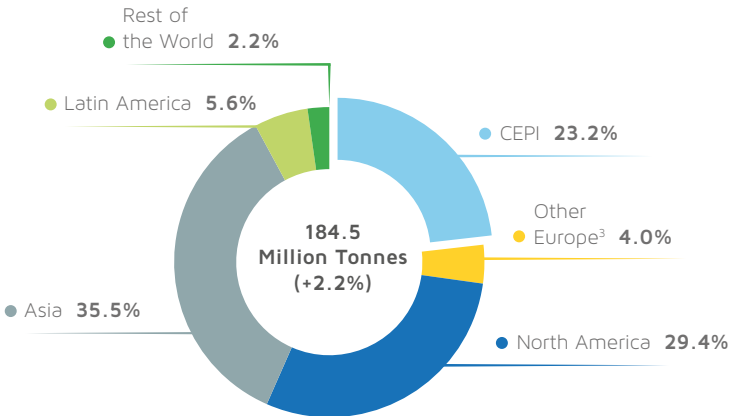


<sup>1</sup> Total Pulp = Integrated Pulp + Market Pulp

World Total Pulp<sup>1</sup> Production by Region in 2017<sup>2</sup>



World Total Pulp<sup>1</sup> Consumption by Region in 2017<sup>2</sup>



<sup>1</sup>Total Pulp = Integrated Pulp + Market Pulp

<sup>2</sup>Sources: CEPI, RISI - 2018 figures will be available in December 2019

<sup>3</sup>Other Europe: total Europe excluding CEPI countries

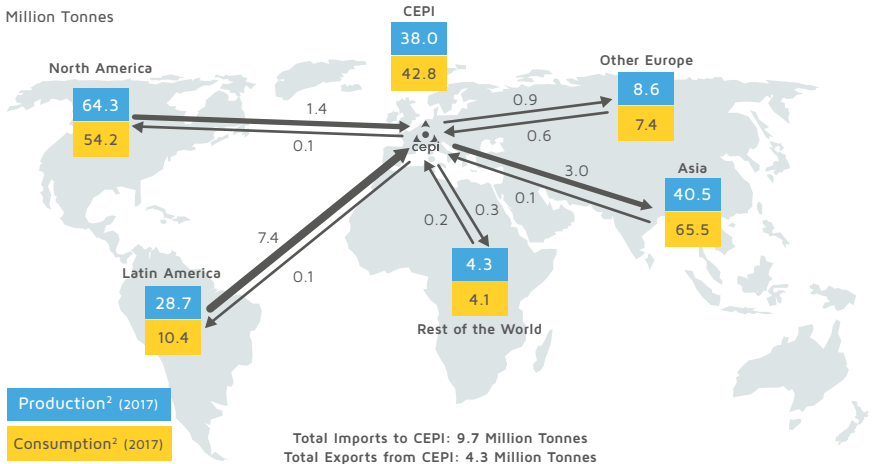
### CEPI Exports of Market Pulp to Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	724	674	719	927	<b>921</b>	21.3	-0.6
North America	104	187	62	45	<b>58</b>	1.3	28.8
Latin America	6	20	49	50	<b>62</b>	1.4	24.1
Asia	412	1 076	1 595	3 189	<b>2 989</b>	69.1	-6.3
Rest of the World	86	114	142	254	<b>298</b>	6.9	17.4
<b>Total</b>	<b>1 332</b>	<b>2 071</b>	<b>2 567</b>	<b>4 466</b>	<b>4 329</b>	<b>100.0</b>	<b>-3.1</b>

### CEPI Imports of Market Pulp from Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	657	615	480	740	<b>639</b>	<b>6.6</b>	<b>-13.7</b>
North America	4 623	3 891	2 292	1 439	<b>1 441</b>	<b>14.8</b>	<b>0.2</b>
Latin America	1 916	2 825	4 733	6 803	<b>7 354</b>	<b>75.5</b>	<b>8.1</b>
Asia	272	197	134	80	<b>81</b>	<b>0.8</b>	<b>1.4</b>
Rest of the World	456	433	81	185	<b>230</b>	<b>2.4</b>	<b>24.5</b>
<b>Total</b>	<b>7 924</b>	<b>7 961</b>	<b>7 721</b>	<b>9 247</b>	<b>9 746</b>	<b>100.0</b>	<b>5.4</b>

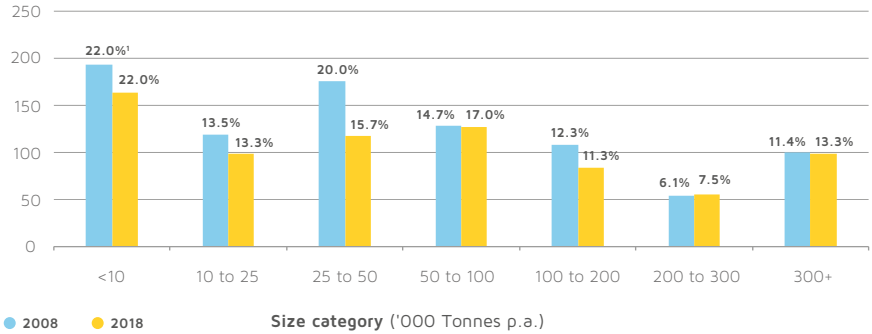
### CEPI Trade Flows of Market Pulp in 2018



<sup>1</sup> Other Europe: total Europe excluding CEPI countries  
<sup>2</sup> Production and consumption of total pulp (market and integrated)

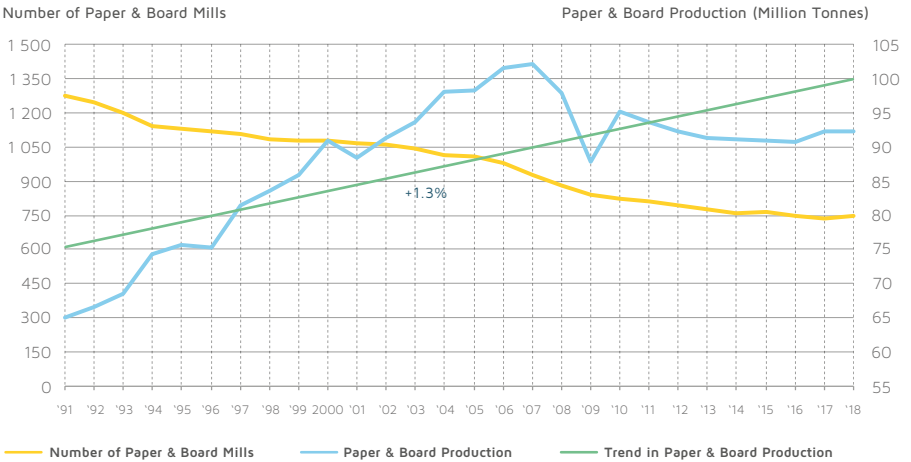
### Number of CEPI Paper & Board Mills by Volume in 2008 and 2018

Number of Paper & Board Mills



<sup>1</sup>Share of Total Number of Mills

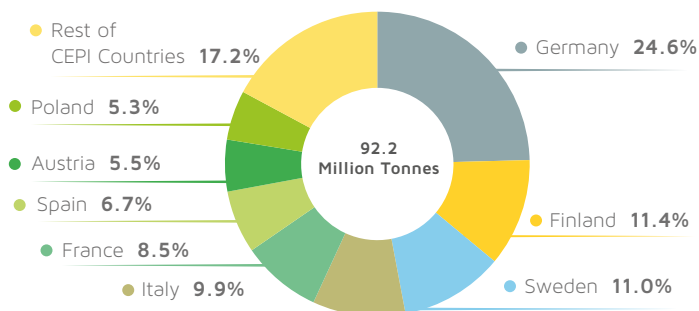
### Number of CEPI Paper & Board Mills and Paper & Board Production



## CEPI Paper &amp; Board Production and Consumption

'000 Tonnes	PRODUCTION			CONSUMPTION		
	2017	2018	% Change 2018/2017	2017	2018	% Change 2018/2017
Newsprint	6 040	<b>5 651</b>	-6.4	5 227	<b>5 061</b>	-3.2
Uncoated Mechanical	5 671	<b>5 567</b>	-1.8	4 719	<b>4 636</b>	-1.8
Coated Mechanical	6 209	<b>6 208</b>	0.0	4 370	<b>4 221</b>	-3.4
Uncoated Woodfree	8 728	<b>8 492</b>	-2.7	7 070	<b>6 915</b>	-2.2
Coated Woodfree	6 694	<b>6 212</b>	-7.2	4 229	<b>3 954</b>	-6.5
Other Graphic Papers	27 303	<b>26 479</b>	-3.0	20 388	<b>19 727</b>	-3.2
<b>Total Graphic Papers</b>	<b>33 343</b>	<b>32 130</b>	<b>-3.6</b>	<b>25 616</b>	<b>24 788</b>	<b>-3.2</b>
<b>Sanitary and Household</b>	<b>7 440</b>	<b>7 570</b>	<b>1.8</b>	<b>7 166</b>	<b>7 281</b>	<b>1.6</b>
Case Materials	29 149	<b>29 876</b>	2.5	27 790	<b>28 582</b>	2.9
Carton Board	9 366	<b>9 613</b>	2.6	6 140	<b>6 079</b>	-1.0
Wrappings	4 177	<b>4 140</b>	-0.9	2 791	<b>2 609</b>	-6.5
Other Paper & Board for Packaging	4 625	<b>4 749</b>	2.7	4 147	<b>4 231</b>	2.0
<b>Total Packaging Paper &amp; Board</b>	<b>47 318</b>	<b>48 377</b>	<b>2.2</b>	<b>40 867</b>	<b>41 500</b>	<b>1.5</b>
<b>Other Paper &amp; Board</b>	<b>4 108</b>	<b>4 103</b>	<b>-0.1</b>	<b>3 765</b>	<b>3 783</b>	<b>0.5</b>
<b>Total Paper &amp; Board</b>	<b>92 208</b>	<b>92 180</b>	<b>0.0</b>	<b>77 414</b>	<b>77 353</b>	<b>-0.1</b>
<b>Including Speciality Paper &amp; Board<sup>1</sup></b>		<b>10 100<sup>2</sup></b>				

## CEPI Paper &amp; Board Production by Country in 2018

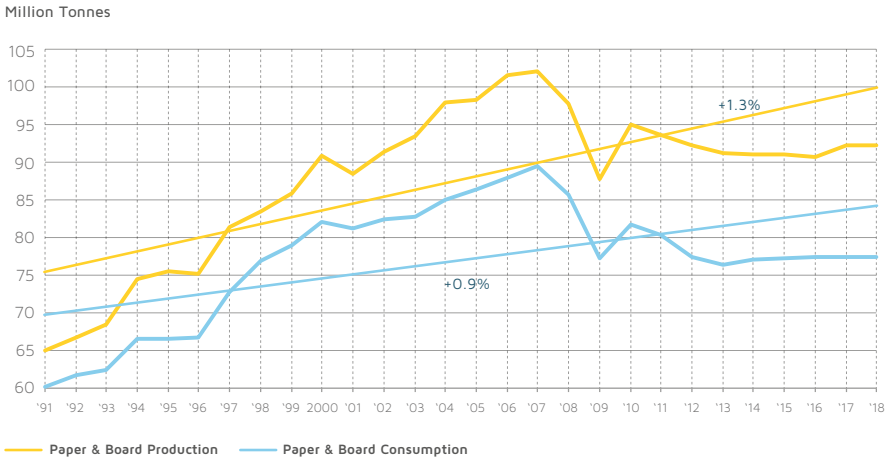


<sup>1</sup> Speciality paper and board can be defined as paper or board that require properties (physical, optical, electrical, chemical and/or other special considerations) that are different from the norm for the market sector and application being served.

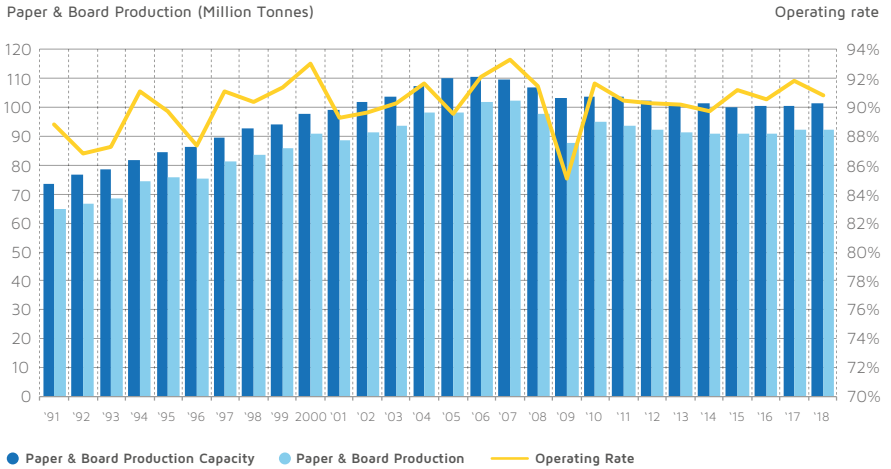
It can be found under several CEPI categories: wrappings, carton board, graphic papers, sanitary and household and other paper and board. Speciality paper and board represent 1% of sanitary and household, 3% of graphic papers, 23% of carton board, 70% of wrappings and 97% of other paper and board.

<sup>2</sup> Based on AWA (Alexander Watson Associates) and CEPI estimates.

### CEPI Paper & Board Production and Consumption

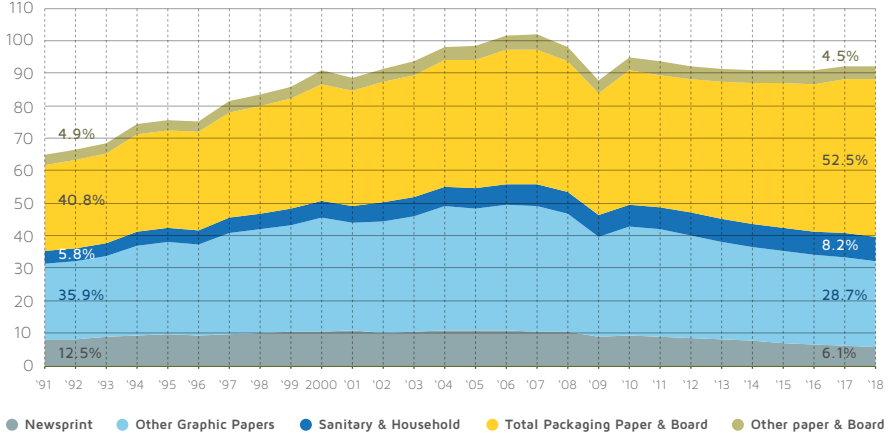


### CEPI Paper & Board Production and Capacity



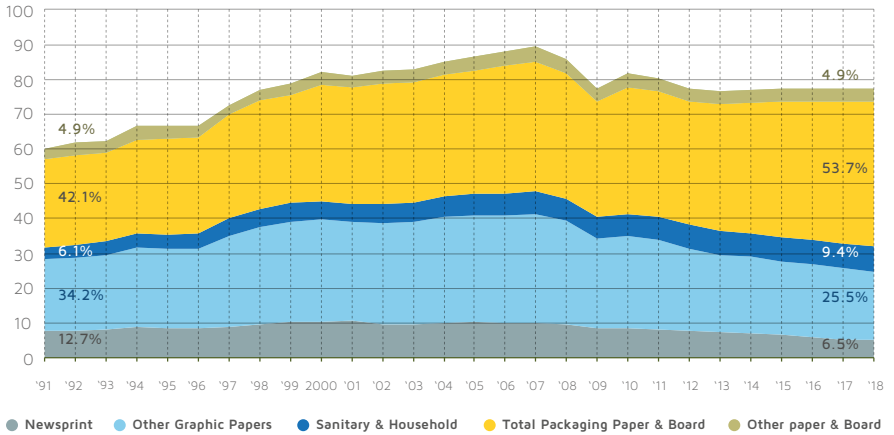
### CEPI Paper & Board Production by Grade

Million Tonnes

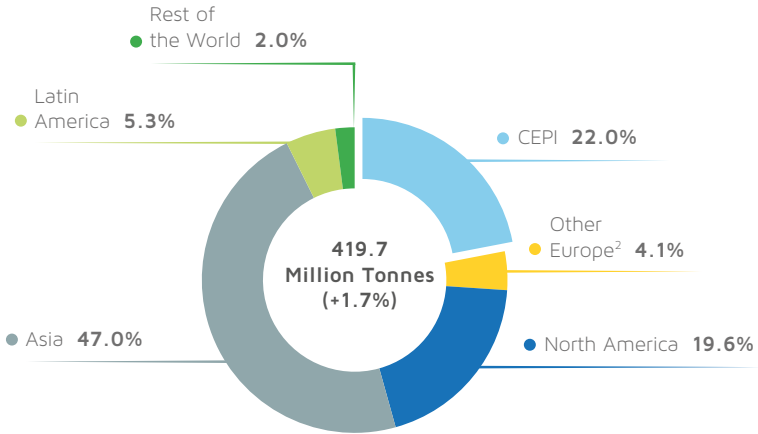


### CEPI Paper & Board Consumption by Grade

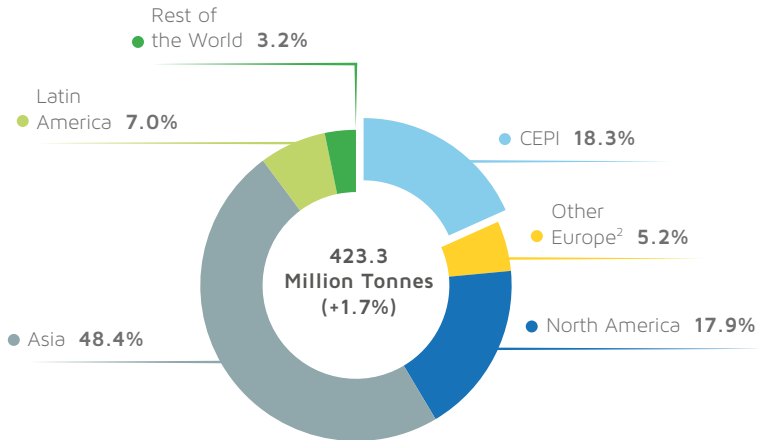
Million Tonnes



Paper & Board Production by Region in 2017<sup>1</sup>



Paper & Board Consumption by Region in 2017<sup>1</sup>



<sup>1</sup> Sources: CEPI, RISI - 2018 figures will be available in December 2019

<sup>2</sup> Other Europe: total Europe excluding CEPI countries



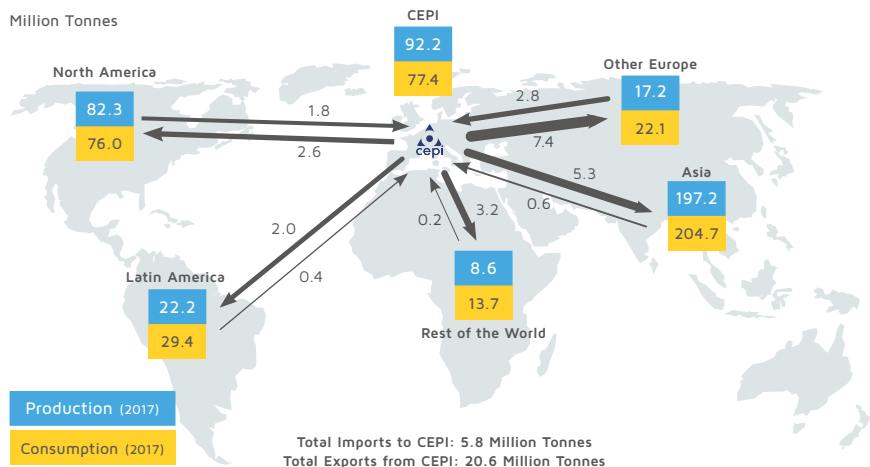
### CEPI Exports of Paper & Board to Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	6 090	6 825	7 349	7 458	<b>7 426</b>	36.1	-0.4
North America	2 283	2 802	2 055	2 294	<b>2 620</b>	12.7	14.2
Latin America	874	1 194	1 879	1 845	<b>2 040</b>	9.9	10.6
Asia	2 933	4 742	5 099	5 691	<b>5 274</b>	25.6	-7.3
Rest of the World	1 707	2 229	2 783	3 082	<b>3 222</b>	15.7	4.6
<b>Total</b>	<b>13 887</b>	<b>17 793</b>	<b>19 164</b>	<b>20 369</b>	<b>20 583</b>	<b>100.0</b>	<b>1.1</b>

### CEPI Imports of Paper & Board from Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	3 318	2 727	2 525	2 637	<b>2 774</b>	48.2	5.2
North America	2 191	1 915	1 829	1 610	<b>1 762</b>	30.6	9.4
Latin America	198	498	498	316	<b>368</b>	6.4	16.3
Asia	332	394	625	662	<b>635</b>	11.0	-4.1
Rest of the World	344	369	307	348	<b>218</b>	3.8	-37.3
<b>Total</b>	<b>6 383</b>	<b>5 903</b>	<b>5 783</b>	<b>5 574</b>	<b>5 756</b>	<b>100.0</b>	<b>3.3</b>

### CEPI Trade Flows of Paper & Board in 2018



<sup>1</sup>Other Europe: total Europe excluding CEPI countries

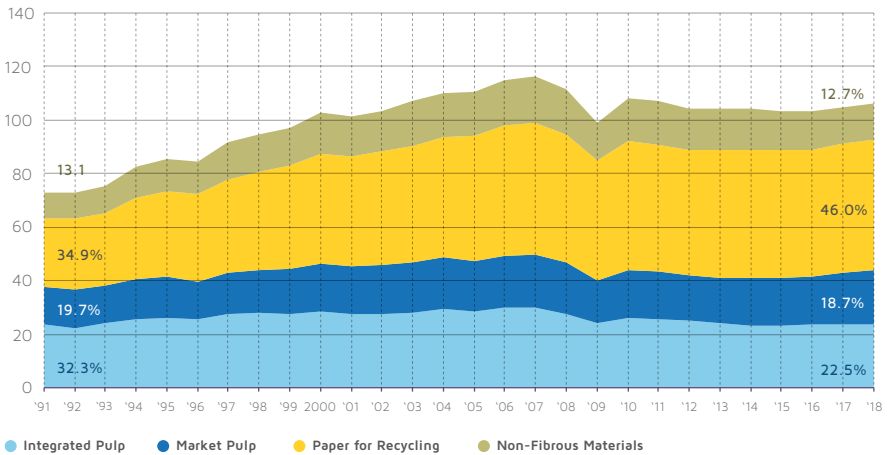
## Raw Materials Summary

### CEPI Raw Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Integrated Pulp	23 483	28 362	28 460	25 989	23 816	23 885	22.5	0.3
Market Pulp	14 332	18 015	19 032	17 860	18 973	19 836	18.7	4.5
Paper for Recycling	25 360	40 922	46 745	48 122	48 338	48 791	46.0	0.9
Non-Fibrous Materials	9 504	15 603	16 556	16 213	13 758	13 508	12.7	-1.8
<b>Total Raw Materials</b>	<b>72 679</b>	<b>102 902</b>	<b>110 793</b>	<b>108 184</b>	<b>104 885</b>	<b>106 020</b>	<b>100.0</b>	<b>1.1</b>

### CEPI Raw Materials Consumption

Million Tonnes



## CEPI Wood Consumption

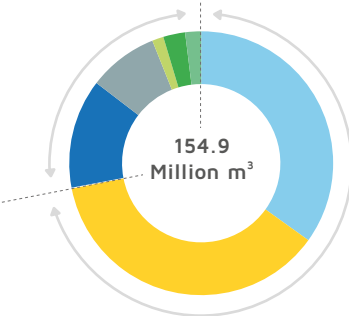
'000 m <sup>3</sup>	1991	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Softwood Roundwood	65 240	72 372	74 415	76 641	72 939	76 837	49.6	5.3
Softwood Chips	24 623	35 673	37 628	34 141	35 342	35 231	22.7	-0.3
<b>Total Softwood</b>	<b>89 863</b>	<b>108 046</b>	<b>112 043</b>	<b>110 782</b>	<b>108 282</b>	<b>112 069</b>	<b>72.4</b>	<b>3.5</b>
Hardwood Roundwood	28 963	38 542	39 914	36 635	38 953	40 393	26.1	3.7
Hardwood Chips	1 447	1 505	1 423	1 483	2 147	2 417	1.6	12.6
<b>Total Hardwood</b>	<b>30 410</b>	<b>40 048</b>	<b>41 337</b>	<b>38 119</b>	<b>41 099</b>	<b>42 811</b>	<b>27.6</b>	<b>4.2</b>
<b>Total Roundwood</b>	<b>94 204</b>	<b>110 915</b>	<b>114 329</b>	<b>113 276</b>	<b>111 892</b>	<b>117 231</b>	<b>75.7</b>	<b>4.8</b>
<b>Total Chips</b>	<b>26 070</b>	<b>37 179</b>	<b>39 051</b>	<b>35 625</b>	<b>37 489</b>	<b>37 649</b>	<b>24.3</b>	<b>0.4</b>
<b>Total Wood</b>	<b>120 274</b>	<b>148 093</b>	<b>153 380</b>	<b>148 901</b>	<b>149 381</b>	<b>154 880</b>	<b>100.0</b>	<b>3.7</b>

## Share in CEPI Wood Consumption in 2018

By Species<sup>1</sup>

Hardwood: 28.0%    Softwood: 72.0%

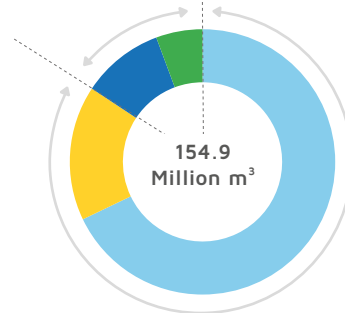
- Birch 13.4%
- Eucalyptus 8.6%
- Beech 2.7%
- Aspen 1.4%
- Other Hardwood<sup>2</sup> 2.0%
- Pine 34.9%
- Spruce 37.0%
- Other Softwood 0.1%



## By Origin

Imported: 15.7%    Domestic: 84.3%

- Imported Roundwood 10.0%
- Imported Chips 5.7%
- Domestic Roundwood 67.9%
- Domestic Chips 16.4%

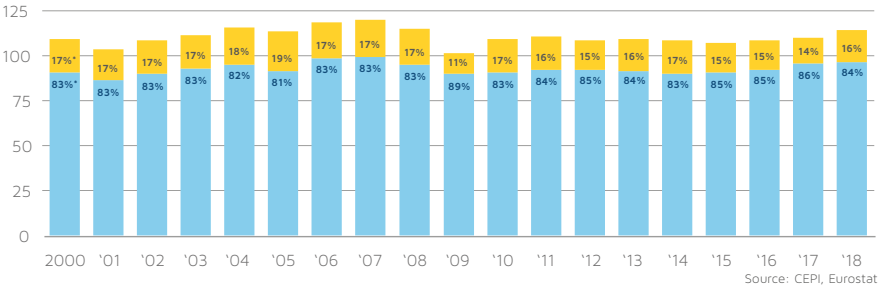


<sup>1</sup> Based on a sample representing 90% of total CEPI consumption

<sup>2</sup> Other Hardwood = hornbeam, ash, maple, accacia, quercus-cerris, oak, alder, poplar, willow, chesnut

### CEPI Wood Consumption by Origin

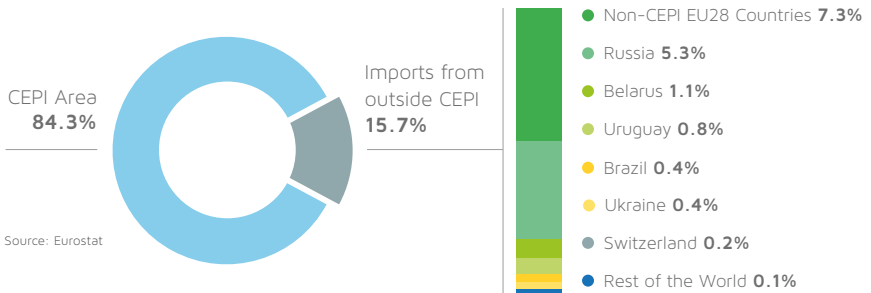
Million Tonnes



● Wood from Domestic Origin ● Imported Wood

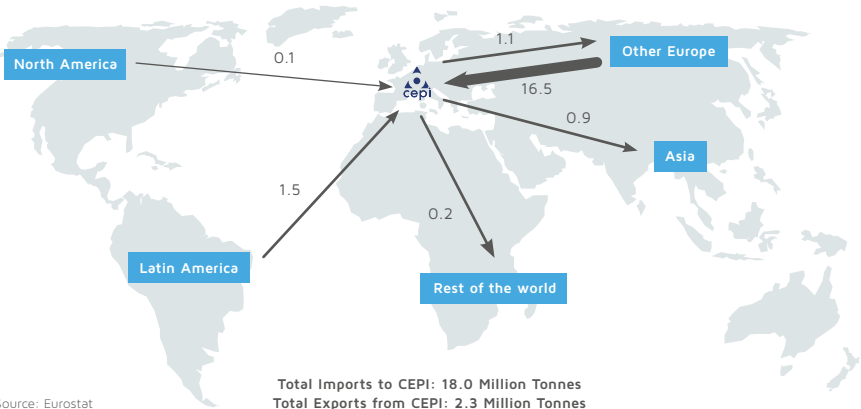
\* Percentage of total wood consumption

### CEPI Wood Consumption by Origin in 2018



### CEPI Trade Flows of Wood in 2018

Million Tonnes



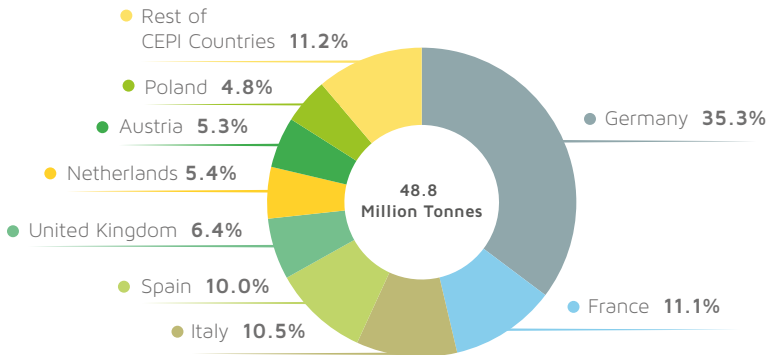
### CEPI Utilisation of Paper for Recycling by Sector in 2018

'000 Tonnes Paper Sector	Grades of Paper for Recycling							
	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D Other Grades	E Total Use of Paper for Recycling	F Utilisation by Sector <sup>1</sup> %	G Total P&B Production	E/G Utilisation Rate <sup>2</sup> %
Newsprint	20	0	5 092	142	5 253	10.8	5 651	93.0
Other Graphic Papers	47	4	2 767	625	3 443	7.1	26 479	13.0
<b>Total Graphic Papers</b>	<b>67</b>	<b>4</b>	<b>7 858</b>	<b>767</b>	<b>8 696</b>	<b>17.8</b>	<b>32 130</b>	<b>27.1</b>
Case Materials	4 813	22 095	137	822	27 866	57.2	29 876	93.3
Carton Board	1 674	612	77	807	3 170	6.5	9 613	33.0
Wrappings, Other Pack.	2 247	1 727	218	485	4 676	9.6	8 888	52.6
<b>Total Packaging Paper &amp; Board</b>	<b>8 733</b>	<b>24 433</b>	<b>432</b>	<b>2 114</b>	<b>35 712</b>	<b>73.2</b>	<b>48 377</b>	<b>73.8</b>
Sanitary and Household	286	151	522	1 934	2 894	5.9	7 570	38.2
Other Paper & Board	180	1 075	34	169	1 457	3.0	4 103	35.5
<b>Total Paper &amp; board</b>	<b>9 266</b>	<b>25 663</b>	<b>8 846</b>	<b>4 984</b>	<b>48 759</b>	<b>100.0</b>	<b>92 180</b>	<b>52.9</b>
<b>Share of Total</b>	<b>19.0%</b>	<b>52.6%</b>	<b>18.1%</b>	<b>10.2%</b>	<b>100.0%</b>			
<b>De-inked Market Pulp</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>12</b>	<b>32</b>			

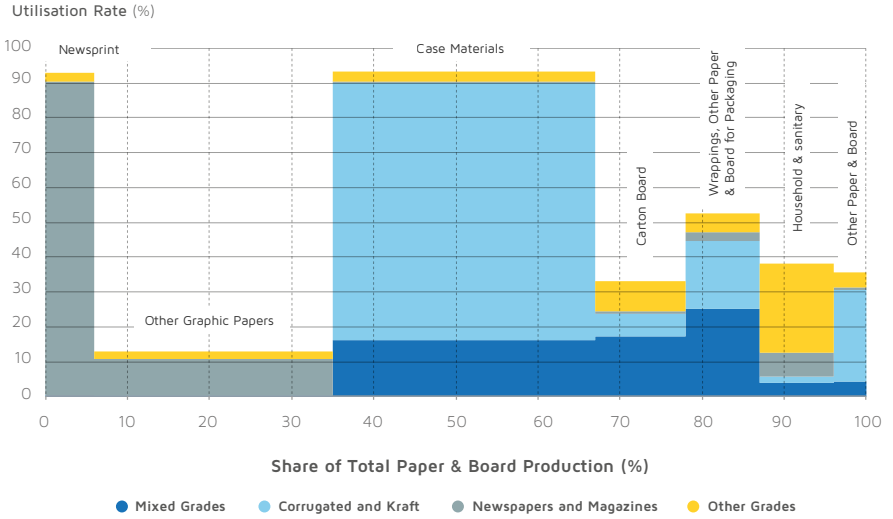
<sup>1</sup>Utilisation by sector: total use of paper for recycling in a sector as a percentage of the total paper for recycling used by the industry

<sup>2</sup>Utilisation rate: use of paper for recycling in a sector as a percentage of total paper & board production in that sector

### CEPI Utilisation of Paper for Recycling by Country in 2018



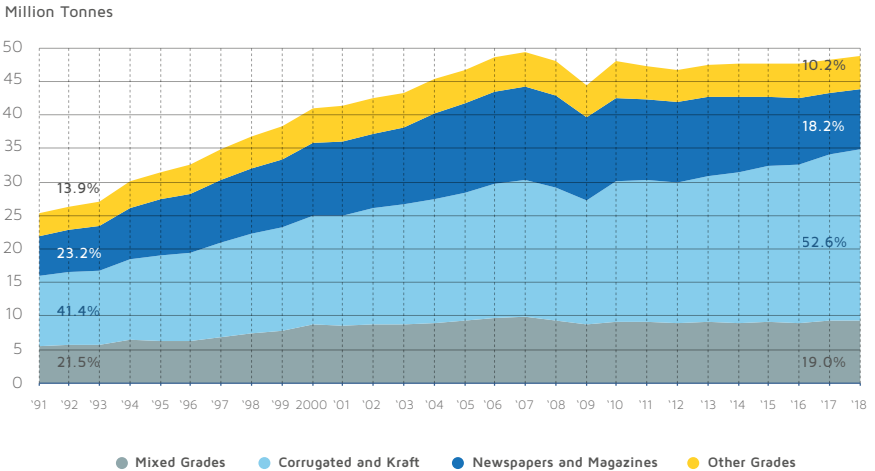
### CEPI Utilisation of Paper for Recycling by Sector in 2018



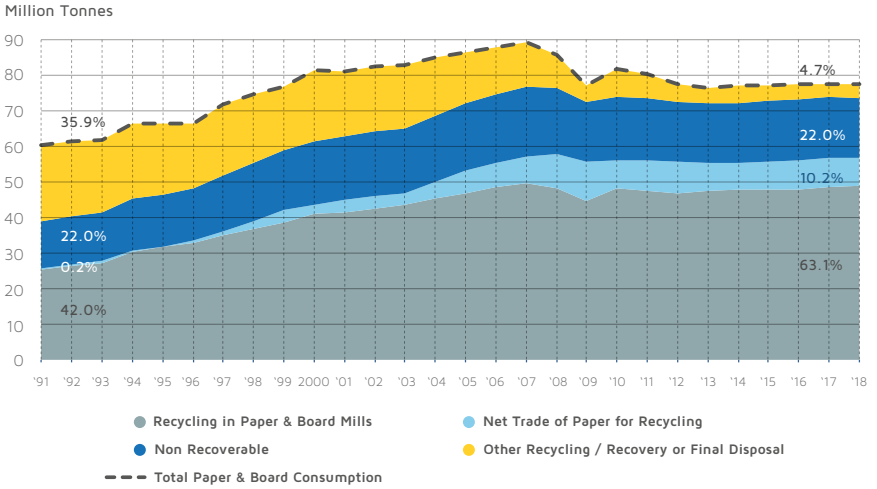
**For instance:** case materials represent 35% of total paper and board production, have an utilisation rate of 93% and use 57% of total paper for recycling volumes used by the industry.

**Important Note:** Paper for recycling is composed of fibres but also unusable materials - non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the actual sorting and collection of used paper. It varies according to grades of paper for recycling and countries. The volume of recycled fibres actually used to produce new paper is therefore lower than the volume of paper for recycling considered. The utilisation rate compares utilisation of paper for recycling to paper & board production.

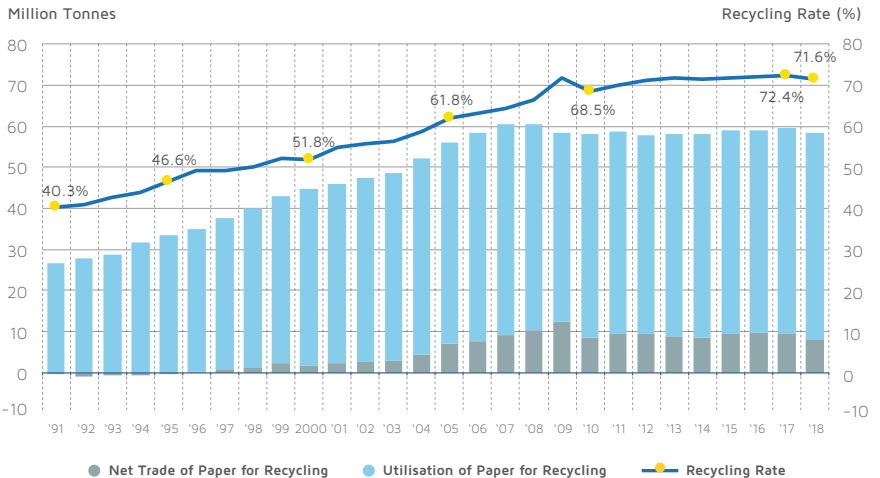
### CEPI Utilisation of Paper for Recycling by Grade



### CEPI Paper & Board Consumption and Recycling



### Utilisation, Net Trade and Recycling Rate<sup>1</sup> of Paper for Recycling in Europe<sup>2</sup>



<sup>1</sup> Recycling Rate = Utilisation of Paper for Recycling + Net Trade of Paper for Recycling, compared to Paper & Board Consumption

<sup>2</sup> Europe means EU-28 countries plus Norway and Switzerland

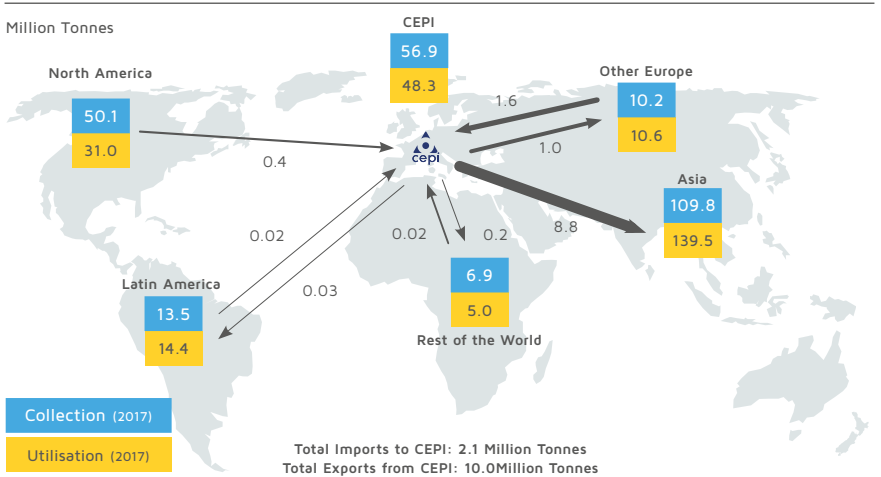
### CEPI Exports of Paper for Recycling to Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	676	444	373	1 066	<b>979</b>	9.8	-8.2
North America	47	22	27	2	<b>5</b>	0.1	179.2
Latin America	7	5	21	35	<b>32</b>	0.3	-8.1
Asia	2 894	7 087	9 157	9 506	<b>8 802</b>	88.3	-7.4
Rest of the World	127	140	14	14	<b>154</b>	1.5	-
<b>Total</b>	<b>3 751</b>	<b>7 698</b>	<b>9 592</b>	<b>10 623</b>	<b>9 972</b>	<b>100.0</b>	<b>-6.1</b>

### CEPI Imports of Paper for Recycling from Other Regions

'000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe <sup>1</sup>	735	1 131	1 596	1 801	<b>1 634</b>	79.0	-9.3
North America	264	199	184	214	<b>390</b>	18.9	82.5
Latin America	0	4	3	22	<b>18</b>	0.9	-19.9
Asia	9	0	6	10	<b>5</b>	0.2	-47.1
Rest of the World	7	9	8	53	<b>21</b>	1.0	-60.7
<b>Total</b>	<b>1 015</b>	<b>1 343</b>	<b>1 796</b>	<b>2 099</b>	<b>2 068</b>	<b>100.0</b>	<b>-1.5</b>

### CEPI Trade Flows of Paper for Recycling in 2018



<sup>1</sup>Other Europe: total Europe excluding CEPI countries

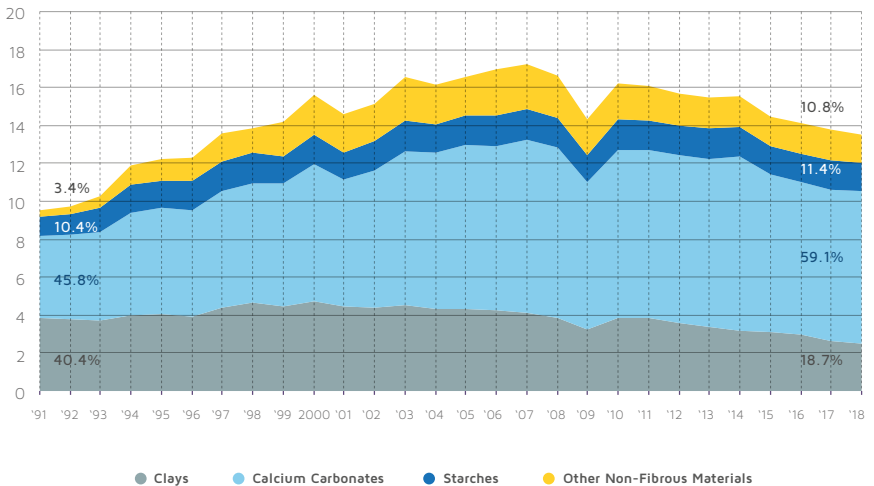


## CEPI Non-Fibrous Materials Consumption

'000 Tonnes	1991	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Clays (coating and filler)	3 842	4 716	4 323	3 825	2 648	<b>2 525</b>	18.7	-4.7
Calcium Carbonates (coating and filler)	4 349	7 247	8 662	8 903	7 972	<b>7 988</b>	59.1	0.2
Starches (native and modified)	989	1 551	1 535	1 593	1 567	<b>1 542</b>	11.4	-1.6
Other Non-Fibrous Materials	324	2 089	2 037	1 892	1 572	<b>1 454</b>	10.8	-7.5
<b>Non-Fibrous Materials</b>	<b>9 504</b>	<b>15 603</b>	<b>16 556</b>	<b>16 213</b>	<b>13 758</b>	<b>13 508</b>	<b>100.0</b>	<b>-1.8</b>

## CEPI Non-Fibrous Materials Consumption

Million Tonnes

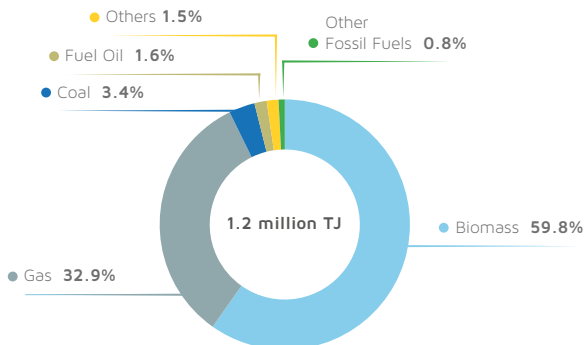


CEPI Primary Energy and Electricity Consumption<sup>1</sup>

Primary Energy Consumption TJ	1991	2000	2005	2010	2016	2017	% Share of Total <sup>3</sup>	% Change 2017/2016
Gas	259 593	404 946	489 425	489 565	395 792	<b>391 570</b>	29.1	-1.1
Fuel Oil	129 461	90 914	67 454	37 856	21 446	<b>18 814</b>	1.4	-12.3
Coal	113 867	59 304	48 314	53 280	46 120	<b>39 909</b>	3.0	-13.5
Other Fossil Fuels	10 134	19 052	19 714	14 529	9 724	<b>9 492</b>	0.7	-2.4
Biomass	413 248	562 865	635 511	677 569	686 481	<b>710 462</b>	52.8	3.5
Other	3 560	4 151	8 602	8 948	13 089	<b>18 149</b>	1.3	38.7
<b>Total Fuels Consumption</b>	<b>929 863</b>	<b>1 141 232</b>	<b>1 268 995</b>	<b>1 281 746</b>	<b>1 172 653</b>	<b>1 188 395</b>	<b>88.3</b>	<b>1.3</b>
<b>Net Bought Electricity</b>	<b>205 852</b>	<b>246 864</b>	<b>228 050</b>	<b>202 945</b>	<b>163 903</b>	<b>157 684</b>	<b>11.7</b>	<b>-3.8</b>
<b>Total Primary Energy Consumption</b>	<b>1 135 715</b>	<b>1 388 096</b>	<b>1 497 045</b>	<b>1 484 691</b>	<b>1 336 556</b>	<b>1 346 080</b>	<b>100.0</b>	<b>0.7</b>
<b>Fraction of Biomass in Total Fuels Consumption</b>	<b>44.4%</b>	<b>49.3%</b>	<b>50.1%</b>	<b>52.9%</b>	<b>58.5%</b>	<b>59.8%</b>		<b>1.2</b>

Electricity Consumption GWh	1991	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Total Electricity Produced at Site	29 416	41 930	50 462	56 780	51 386	<b>53 537</b>	55.0	4.2
Purchased Electricity	59 045	72 255	72 815	67 567	56 924	<b>55 769</b>	57.3	-2.0
Sold Electricity	-1 864	-3 681	-9 468	-11 193	-11 396	<b>-11 967</b>	12.3	5.0
<b>Total Electricity Consumption</b>	<b>86 527</b>	<b>110 424</b>	<b>113 874</b>	<b>113 137</b>	<b>96 914</b>	<b>97 338</b>	<b>100.0</b>	<b>0.4</b>
<b>% of Electricity produced through CHP<sup>2</sup></b>	<b>88.0%</b>	<b>90.4%</b>	<b>94.4%</b>	<b>95.4%</b>	<b>96.0%</b>	<b>96.3%</b>		<b>0.3</b>

CEPI Fuels Consumption in 2017<sup>1</sup>



<sup>1</sup>Excluding Hungary, Romania & Slovenia - excluding Poland before 2003

<sup>2</sup>CHP: combined heat and power (compared to total on-site electricity generation)

<sup>3</sup>Share of total primary energy consumption (including net bought electricity)

CEPI Key Figures on Energy and Environment<sup>1</sup>

	1991	2000	2005	2010	2016	2017	% Change 2017/2016	% Change 2017/1991
<b>Energy Consumption</b>								
Production of Market Pulp and Paper & Board ('000 Tonnes)	71 971	98 691	109 644	106 084	102 313	<b>104 295</b>	1.9	44.9
Specific Primary Energy Consumption (TJ/kt)	15.78	14.07	13.65	14.00	13.06	<b>12.91</b>	-1.2	-18.2
Specific Electricity Consumption (MWh/kt)	1.20	1.12	1.04	1.07	0.95	<b>0.93</b>	-1.5	-22.4
<b>Direct CO<sub>2</sub> Emissions<sup>2</sup></b>								
Absolute (Mega Tonnes)	39.05	41.94	43.24	37.83	32.37	<b>32.22</b>	-0.5	-17.5
Specific (kt CO <sub>2</sub> / kt of product)	0.54	0.42	0.39	0.35	0.31	<b>0.30</b>	-2.4	-44.2
<b>Indirect CO<sub>2</sub> Emissions<sup>3</sup></b>								
Absolute (Mega Tonnes)	13.88	14.33	12.47	11.59	10.00	<b>9.54</b>	-4.6	-31.3
Specific (kt CO <sub>2</sub> / kt of product)	0.19	0.15	0.11	0.11	0.10	<b>0.09</b>	-6.4	-52.6
<b>Water Specific Emissions</b>								
COD (kg / T of product)	23.36	9.08	6.60	6.32	5.50	<b>5.41</b>	-1.5	-76.8
AOX (kg / T of product)	0.433	0.049	0.030	0.030	0.023	<b>0.022</b>	-3.6	-94.9
<b>Air Specific Emissions</b>								
SO <sub>2</sub> (kg S / T of product)	1.32	0.40	0.32	0.24	0.20	<b>0.14</b>	-29.8	-89.6
NOx (kg NOx / T of product)	1.31	0.90	0.83	0.85	0.74	<b>0.69</b>	-6.7	-47.2

<sup>1</sup> Excluding Hungary, Romania & Slovenia - excluding Poland before 2003

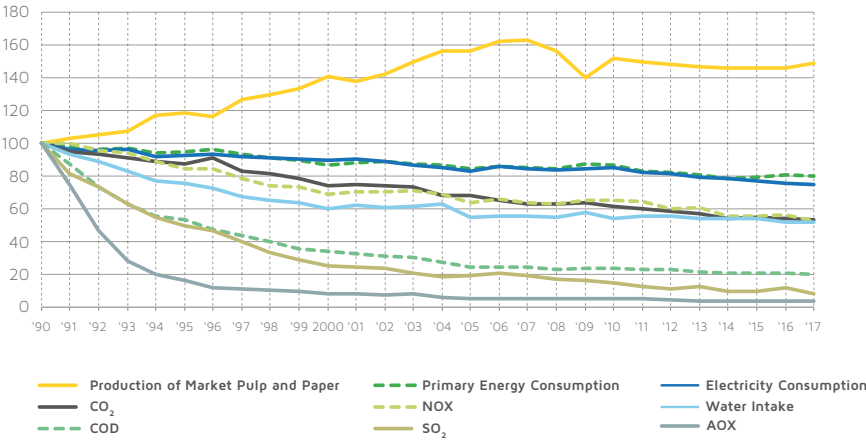
<sup>2</sup> Including all CEPI countries from 2005. See Key Figures for the 2018 data

<sup>3</sup> Indirect CO<sub>2</sub> Emissions :CO<sub>2</sub> emissions from net bought electricity, calculated as "net bought electricity" multiplied by the "electricity emissions factor" applied in each country.

**Note:** Direct CO<sub>2</sub> Emissions are the fossil emissions produced by pulp and paper mills and connected energy plants.

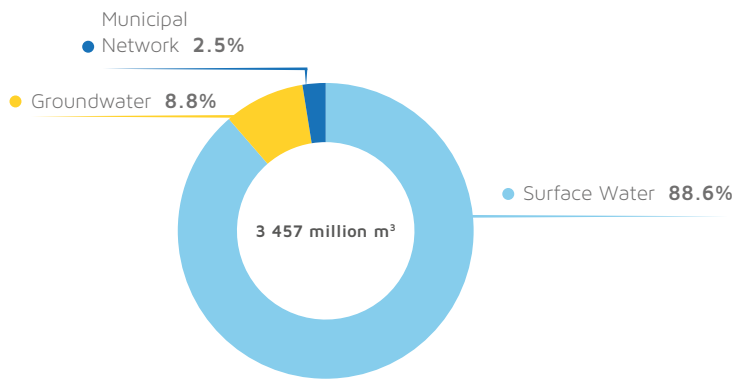
### Evolution of Environmental Impacts of the CEPI Pulp and Paper Industry<sup>1</sup>

Index of Specific Values (1990 = 100)



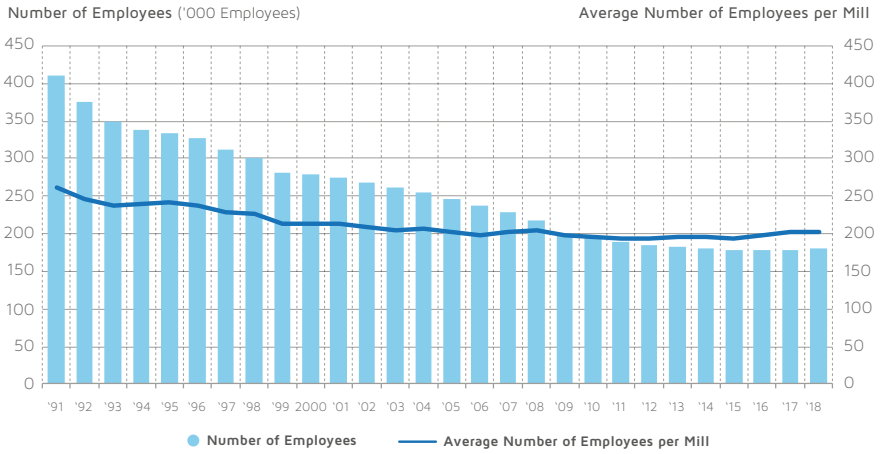
Water Emissions: COD (Chemical Oxygen Demand) - AOX  
 Air Emissions: CO<sub>2</sub> - NOX (Azote Oxydes) - SO<sub>2</sub>

### Sources of Water Intake in 2017<sup>1</sup>

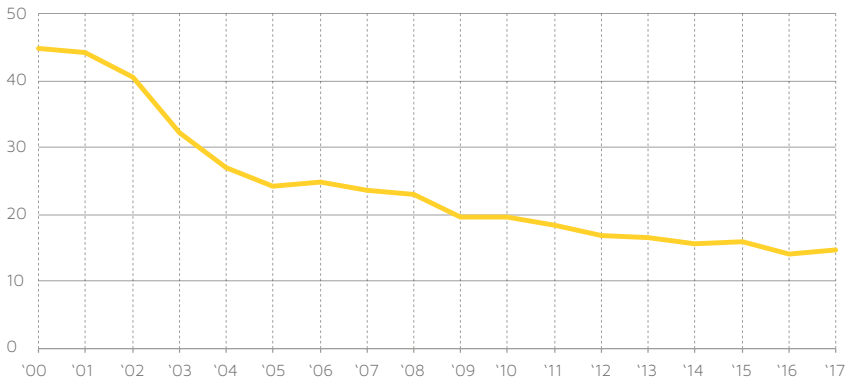


<sup>1</sup>Excluding Hungary, Romania & Slovenia - excluding Poland before 2003

## CEPI Employment Evolution



## CEPI Accident Rate<sup>1</sup>



<sup>1</sup> Accident rate: Number of accidents (fatal and non-fatal) x 1000/number of employees (absence of more than 3 days)  
 Include Austria, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom  
 Figures for 2018 will be available in December 2019

# Glossary

## PULP

**Pulp Consumption:** Production + Imports from outside CEPI - Exports to outside CEPI

**Integrated Pulp Production:** Integrated pulp is produced for use as raw material in the production of paper at the same mill, or for shipment by a producing mill to other mills, which it owns, controls or with which it is affiliated within the same country and therefore not sold on the open market.

### Pulp Grades:

**Mechanical - Stone groundwood:** pulp produced by grinding wood into relatively short fibres.

CEPI Harmonised Code is 923 000 000.

**Thermo-mechanical:** pulp produced in a thermo-mechanical process where wood particles are softened by steam before entering a pressurised refiner. CEPI Harmonised Code is 923 400 000.

**Semi-chemical:** pulp produced in a two-stage process which involves partial digestion with chemicals, followed by mechanical treatment in a disc refiner. CEPI Harmonised Code is 921 000 000.

**Chemical - Sulphite:** pulp produced by cooking wood chips in a pressure vessel in the presence of bisulphite liquor. CEPI Harmonised Code is 922 200 000.

**Chemical - Sulphate (or kraft):** pulp produced by cooking wood chips in pressure vessels in the presence of a sodium hydroxide (soda) liquor. CEPI Harmonised Code is 922 100 000.

**Other Pulp:** Pulp produced from fibres other than wood, such as sugar cane bagasse, wheat straw, kenaf, cotton rags and hemp.

## PAPER

**Paper and Board Consumption:** Production + Imports from outside CEPI - Exports to outside CEPI

### Paper Grades:

**Newsprint:** paper mainly used for printing newspapers. CEPI Harmonised Code is 100 000 000.

**Uncoated mechanical:** paper suitable for printing or other graphic purposes where less than 90% of the fibre furnish consists of chemical pulp fibres. CEPI Harmonised Code is 211 000 000.

**Uncoated woodfree:** paper suitable for printing or other graphic purposes, where at least 90% of the fibre furnish consists of chemical pulp fibres. CEPI Harmonised Code is 231 000 000.

**Coated papers:** all paper suitable for printing or other graphic purposes and coated on one or both sides with minerals such as china clay (kaolin), calcium carbonate, etc.

CEPI Harmonised Code for Coated Mechanical is 212 000 000 and for Coated Woodfree is 232 000 000.

**Sanitary and Household:** This covers a wide range of tissue and other hygienic papers for use in households or commercial and industrial premises. CEPI Harmonised Code is 700 000 000.

**Case materials:** papers and boards mainly used in the manufacture of corrugated board. Included are kraftliner, testliner, semi-chemical fluting, and waste-based fluting (Wellenstoff). Also known as containerboard, corrugated case materials, cardboard, linerboard or corrugating medium. CEPI Harmonised Code is 300 000 000.

**Carton board:** made from virgin and/or recovered fibres, mainly used in cartons for consumer products.

Also known as solid board, folding box board, boxboard or carrier board. CEPI Harmonised Code is 400 000 000.

**Wrappings:** papers whose main use is wrapping or packaging made from any combination of virgin or recovered fibres, bleached or unbleached. Included are sack kraft, other wrapping krafts, sulphite and grease-proof papers.

CEPI Harmonised Code is 500 000 000.

**Other paper and board for packaging:** this category embraces all paper and board mainly for packaging purposes other than those listed above. CEPI Harmonised Code is 600 000 000.

**Other paper and board:** includes cigarette papers and filter papers, as well as gypsum liners and special papers for waxing, insulating, roofing, asphaltting, and other specific applications or treatments. CEPI Harmonised Code is 800 000 000.

## PAPER FOR RECYCLING

**Collection:** Utilisation - Imports from outside CEPI + Exports to outside CEPI

**Utilisation rate:** percentage of paper for recycling utilisation compared to the total paper & board production.

**Important Note:** Paper for recycling is composed of fibres but also unusable materials - non-paper components as well as paper and board detrimental to production. The share of unusable materials depends on the actual sorting and collection of used paper. It varies according to paper for recycling grades and countries. The volume of recycled fibres actually used to produce new paper is therefore lower than the volume of paper for recycling considered. The utilisation rate compares utilisation of paper for recycling to paper & board production.

**Recycling rate:** "utilisation of paper for recycling + net trade of paper for recycling", compared to paper & board consumption.

**Utilisation by sector:** total utilisation of paper for recycling in a sector as percentage of the overall utilisation of paper for recycling.

More information can be found in the CEPI booklet "Pulp and paper industry - definitions and concepts" available on CEPI's website.





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