

**Evaluating the consumption of chemical products and articles as proxies for  
diffuse emissions to the environment**

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**Electronic Supplementary Information**

## 1 Texts:

### 3 Text S1: Modifications made to the EUROPROMS data

4 (1) To keep data confidential while still providing information to users of EUROPROMS at an  
5 aggregated level (such as the whole of Europe), Eurostat in some cases provides so called “rounded  
6 data” for the production values and a rounding error. These rounding errors however, can sometimes  
7 equal the reported values. We therefore removed all production data where the rounding error was  
8 50% or more of the reported value and replaced these by interpolation between adjacent years where  
9 possible. An example is the PRODCOM category “coin” (PRODCOM code 32111000) for which the  
10 rounded EU production value in 2014 was 0.4 million tonnes and the rounding error was 0.4 million  
11 tonnes, meaning that the actual value of the production could lie anywhere between 0 and 0.8 million  
12 tonnes.

14 (2) To avoid artificial trends in the data due to new codes being introduced or old codes being  
15 removed from the statistics, only PRODCOM codes that appear over the entire span of 2003 – 2016  
16 were included. In this step we made use of the conversion tables published on Eurostat’s metadata  
17 server Ramon, to convert older PRODCOM codes to their 2016 version where possible. If two or  
18 more codes were merged over the years, then these were summed up. Caution was taken here to make  
19 sure that (1) all summed codes were reported in the same units and (2) none of the codes had missing  
20 data.

22 (3) Missing data in EUROPROMS was dealt with by interpolating between the years for which data  
23 was available, assuming that production decreased or increased in a linear fashion between the  
24 reported values. In cases where the first (2003) or last (2016) year of data was missing, the data was  
25 assumed to be equal to that of the following or previous year respectively. No interpolation was done  
26 in case both the first 2 or last 2 years of data were missing. PRODCOM codes containing missing data  
27 that could not be interpolated were removed from the analysis.

29 (4) For the majority of the PRODCOM codes, there exists a corresponding CN code in COMEXT.  
30 This allows the use of unit conversion factors, published by Eurostat as metadata to the COMEXT  
31 database, to convert the trade data in EUROPROMS to Kg when no data was given in a unit of weight.  
32 These conversion factors can either be weighted averages from which the outliers have been removed  
33 or industry estimates (2). The conversion from unit to mass was preferred over that of value to mass,  
34 as it is less uncertain, as stated in Eurostat’s user manual (2). PRODCOM codes where the quantity  
35 could not be converted to Kg were excluded from the analysis.

37 (5) Potential outliers in the data for the apparent consumption, were dealt with by calculating the  
38 relative yearly change in the apparent consumption between any 2 following years and flagging those  
39 years for which the change was within the top 1 %.

41 The relative yearly change (of years x and y) was calculated according to Eq. S1:

$$43 \text{ Eq. S1: } (Max \text{ App. Cons.} - Min \text{ App. Cons.}) / (Abs. \text{ Value of } (Min. \text{ App. Cons.}))$$

45 Yearly changes in the consumption ranged from close to 0 to a factor 4,337.37. Discarding the 1%  
46 largest changes between any two years to exclude likely outliers (e.g. due to typos or unit errors) in the  
47 dataset lead to a maximum calculated change of a factor 29 (28.96) for any PRODCOM code. A filter  
48 of 5 % would have set the maximum yearly change to a factor of 3.9. However, as the underlying  
49 reasons to the large yearly changes in EUROPROMS are not known and passed through Eurostat’s  
50 own quality check, it was decided to remove as little data as possible. The PRODCOM codes  
51 displaying the extreme changes did contribute a negligible fraction to the total mass of consumed  
52 products (see main text).

1 Data for any year that was flagged twice, i.e. a sudden jump or drop in the data that lasted for only 1  
2 year, was then interpolated where possible and removed where not. This treatment was then repeated  
3 once more to check which PRODCOM codes had yearly changes in the consumption that were  
4 flagged once. These products were removed from the dataset. The main reasoning for this approach  
5 was that while import, export and production could possibly change drastically within 1 year, we  
6 expected that the apparent consumption should be buffered against the most extreme of such changes.

7  
8 (6) PRODCOM codes containing years with negative consumption were removed from the dataset as  
9 these could indicate that there is an issue with the production and/or trade data (3). An overview of all  
10 the codes originally available in EUROPROMS and those still present after the subsequent filtering  
11 steps can be found in the attached csv files.

### 12 13 Text S2: Isolating packages of food and beverages

14 Food and beverages were not considered to be of interest to this study. PRODCOM codes representing  
15 food and beverages were therefore corrected so that they only represented the mass of the packaging.  
16 The mass of the packaging was estimated by calculating the fraction of material that was considered to  
17 be non-food related based on data in the Commodity Guide and multiplying this percentage with the  
18 total mass of a product under the category food / beverages. Edible ingredients occurring in products  
19 other than food and beverages (e.g. vegetable oils in soaps or sugar in smoking tobacco) were not  
20 removed from the analysis.

### 21 22 Text S3: Estimation of in-use stocks of products before 2003

23  
24 The in-use stock is the mass present in the society at any given year, excluding the mass that has been  
25 disposed of, is under waste handling or is in production. As the service lives of the products in the  
26 dataset extended to 50 years, it was necessary to estimate the consumption values from 1953 onwards  
27 to get an estimate of the in-use stock in 2003 (for simplicity we started in 1950).

28  
29 Consumption values before 2003 were estimated based on the assumption that they increased or  
30 decreased to a similar extent as the domestic material consumption (DMC). Data on the DMC (per  
31 capita) was taken from UNEP and was available from 1970 (4), values before 1970 were assumed to  
32 be equal to those in 1970.

33  
34 The in-use stock in 2003 and onwards was then calculated as the sum of all consumption from 1950 to  
35 the year of interest, minus the mass of those products that have reached the end of their service lives.

36  
37 The estimated service life of the products can be found in the attached csv files that can be  
38 downloaded as supporting information.

## Tables:

*Table S1: Overview of the filtering procedure and the number of PRODCOM codes remaining after each step. Note that the 2016 version of the PRODCOM codes was used as a reference.*



1 Table s2: Apparent consumption and estimated in-use stock for main product categories in Eurostat (2-digit level Prodcom  
2 codes), i.e. raw data on which Fig. 1 and Fig. S4 are based on.

Year	2-digit category	Apparent consumption: million tons	in-use stock: million tons
2003	Basic metals	1,75E+00	4,16E+01
2004	Basic metals	1,73E+00	4,16E+01
2005	Basic metals	1,72E+00	4,15E+01
2006	Basic metals	2,40E+00	4,23E+01
2007	Basic metals	2,74E+00	4,34E+01
2008	Basic metals	2,48E+00	4,42E+01
2009	Basic metals	2,13E+00	4,47E+01
2010	Basic metals	1,78E+00	4,49E+01
2011	Basic metals	2,00E+00	4,52E+01
2012	Basic metals	1,86E+00	4,54E+01
2013	Basic metals	1,82E+00	4,55E+01
2014	Basic metals	1,98E+00	4,57E+01
2015	Basic metals	1,98E+00	4,60E+01
2016	Basic metals	2,31E+00	4,67E+01
2003	Beverages	1,32E+01	1,32E+01
2004	Beverages	1,32E+01	1,32E+01
2005	Beverages	1,37E+01	1,37E+01
2006	Beverages	1,38E+01	1,38E+01
2007	Beverages	1,36E+01	1,36E+01
2008	Beverages	1,30E+01	1,30E+01
2009	Beverages	1,27E+01	1,27E+01
2010	Beverages	1,28E+01	1,28E+01
2011	Beverages	1,35E+01	1,35E+01
2012	Beverages	1,46E+01	1,46E+01
2013	Beverages	1,43E+01	1,43E+01
2014	Beverages	1,25E+01	1,25E+01
2015	Beverages	1,47E+01	1,47E+01
2016	Beverages	1,41E+01	1,41E+01
2003	Chemicals and chemical products	4,21E+01	9,68E+01
2004	Chemicals and chemical products	4,29E+01	9,79E+01
2005	Chemicals and chemical products	4,25E+01	9,84E+01
2006	Chemicals and chemical products	4,26E+01	9,94E+01
2007	Chemicals and chemical products	4,32E+01	1,00E+02
2008	Chemicals and chemical products	4,66E+01	1,05E+02
2009	Chemicals and chemical products	4,25E+01	1,04E+02
2010	Chemicals and chemical products	4,30E+01	1,04E+02
2011	Chemicals and chemical products	4,14E+01	1,03E+02
2012	Chemicals and chemical products	4,35E+01	1,03E+02
2013	Chemicals and chemical products	4,36E+01	9,99E+01

<b>2014</b>	Chemicals and chemical products	4,34E+01	9,73E+01
<b>2015</b>	Chemicals and chemical products	4,53E+01	9,82E+01
<b>2016</b>	Chemicals and chemical products	4,62E+01	1,01E+02
<b>2003</b>	Computer, electronic and optical products	3,67E+00	8,24E+01
<b>2004</b>	Computer, electronic and optical products	3,42E+00	8,22E+01
<b>2005</b>	Computer, electronic and optical products	3,65E+00	8,23E+01
<b>2006</b>	Computer, electronic and optical products	4,12E+00	8,30E+01
<b>2007</b>	Computer, electronic and optical products	4,46E+00	8,41E+01
<b>2008</b>	Computer, electronic and optical products	4,05E+00	8,48E+01
<b>2009</b>	Computer, electronic and optical products	3,98E+00	8,55E+01
<b>2010</b>	Computer, electronic and optical products	4,50E+00	8,66E+01
<b>2011</b>	Computer, electronic and optical products	3,33E+00	8,65E+01
<b>2012</b>	Computer, electronic and optical products	2,86E+00	8,60E+01
<b>2013</b>	Computer, electronic and optical products	2,51E+00	8,50E+01
<b>2014</b>	Computer, electronic and optical products	2,30E+00	8,37E+01
<b>2015</b>	Computer, electronic and optical products	2,19E+00	8,25E+01
<b>2016</b>	Computer, electronic and optical products	2,35E+00	8,16E+01
<b>2003</b>	Electrical equipment	2,91E+01	6,37E+02
<b>2004</b>	Electrical equipment	2,12E+01	6,29E+02
<b>2005</b>	Electrical equipment	2,05E+01	6,21E+02
<b>2006</b>	Electrical equipment	2,26E+01	6,15E+02
<b>2007</b>	Electrical equipment	2,45E+01	6,12E+02
<b>2008</b>	Electrical equipment	2,25E+01	6,07E+02
<b>2009</b>	Electrical equipment	1,88E+01	5,98E+02
<b>2010</b>	Electrical equipment	2,10E+01	5,91E+02
<b>2011</b>	Electrical equipment	1,97E+01	5,82E+02
<b>2012</b>	Electrical equipment	1,80E+01	5,70E+02
<b>2013</b>	Electrical equipment	1,70E+01	5,57E+02
<b>2014</b>	Electrical equipment	1,79E+01	5,45E+02
<b>2015</b>	Electrical equipment	1,79E+01	5,34E+02
<b>2016</b>	Electrical equipment	2,00E+01	5,26E+02
<b>2003</b>	Fabricated metal products, except machinery and equipment	4,38E+01	1,01E+03
<b>2004</b>	Fabricated metal products, except machinery and equipment	4,91E+01	1,02E+03
<b>2005</b>	Fabricated metal products, except machinery and equipment	5,08E+01	1,03E+03
<b>2006</b>	Fabricated metal products, except machinery and equipment	7,45E+01	1,06E+03
<b>2007</b>	Fabricated metal products, except machinery and equipment	7,37E+01	1,09E+03
<b>2008</b>	Fabricated metal products, except machinery and equipment	6,77E+01	1,12E+03
<b>2009</b>	Fabricated metal products, except machinery and equipment	5,30E+01	1,13E+03
<b>2010</b>	Fabricated metal products, except machinery and equipment	5,39E+01	1,14E+03

2011	Fabricated metal products, except machinery and equipment	6,36E+01	1,17E+03
2012	Fabricated metal products, except machinery and equipment	6,15E+01	1,18E+03
2013	Fabricated metal products, except machinery and equipment	5,26E+01	1,19E+03
2014	Fabricated metal products, except machinery and equipment	7,15E+01	1,22E+03
2015	Fabricated metal products, except machinery and equipment	5,37E+01	1,23E+03
2016	Fabricated metal products, except machinery and equipment	5,38E+01	1,25E+03
2003	Food products	1,09E+02	9,68E+01
2004	Food products	1,09E+02	9,60E+01
2005	Food products	1,08E+02	9,21E+01
2006	Food products	1,05E+02	8,94E+01
2007	Food products	1,10E+02	9,29E+01
2008	Food products	1,10E+02	9,14E+01
2009	Food products	1,07E+02	8,93E+01
2010	Food products	1,09E+02	8,98E+01
2011	Food products	1,09E+02	8,99E+01
2012	Food products	1,14E+02	9,43E+01
2013	Food products	1,15E+02	9,52E+01
2014	Food products	1,17E+02	9,70E+01
2015	Food products	1,20E+02	9,84E+01
2016	Food products	1,18E+02	9,85E+01
2003	Furniture	1,53E+00	3,04E+01
2004	Furniture	1,50E+00	3,05E+01
2005	Furniture	1,56E+00	3,06E+01
2006	Furniture	1,80E+00	3,10E+01
2007	Furniture	2,21E+00	3,18E+01
2008	Furniture	2,90E+00	3,32E+01
2009	Furniture	2,04E+00	3,37E+01
2010	Furniture	1,34E+00	3,35E+01
2011	Furniture	1,86E+00	3,39E+01
2012	Furniture	1,55E+00	3,40E+01
2013	Furniture	1,64E+00	3,43E+01
2014	Furniture	1,86E+00	3,48E+01
2015	Furniture	1,85E+00	3,53E+01
2016	Furniture	1,89E+00	3,58E+01
2003	Leather and related products	1,76E+00	8,39E+00
2004	Leather and related products	1,93E+00	8,58E+00
2005	Leather and related products	2,09E+00	8,87E+00
2006	Leather and related products	2,17E+00	9,25E+00
2007	Leather and related products	2,45E+00	9,89E+00
2008	Leather and related products	2,33E+00	1,04E+01

<b>2009</b>	Leather and related products	2,11E+00	1,05E+01
<b>2010</b>	Leather and related products	2,31E+00	1,07E+01
<b>2011</b>	Leather and related products	2,30E+00	1,08E+01
<b>2012</b>	Leather and related products	2,09E+00	1,04E+01
<b>2013</b>	Leather and related products	2,12E+00	1,02E+01
<b>2014</b>	Leather and related products	2,32E+00	1,04E+01
<b>2015</b>	Leather and related products	2,24E+00	1,04E+01
<b>2016</b>	Leather and related products	2,23E+00	1,03E+01
<b>2003</b>	Machinery and equipment n.e.c.	1,49E+01	3,54E+02
<b>2004</b>	Machinery and equipment n.e.c.	1,68E+01	3,56E+02
<b>2005</b>	Machinery and equipment n.e.c.	1,80E+01	3,59E+02
<b>2006</b>	Machinery and equipment n.e.c.	1,88E+01	3,64E+02
<b>2007</b>	Machinery and equipment n.e.c.	2,01E+01	3,70E+02
<b>2008</b>	Machinery and equipment n.e.c.	2,10E+01	3,77E+02
<b>2009</b>	Machinery and equipment n.e.c.	1,55E+01	3,78E+02
<b>2010</b>	Machinery and equipment n.e.c.	1,88E+01	3,83E+02
<b>2011</b>	Machinery and equipment n.e.c.	2,02E+01	3,89E+02
<b>2012</b>	Machinery and equipment n.e.c.	1,82E+01	3,93E+02
<b>2013</b>	Machinery and equipment n.e.c.	1,75E+01	3,96E+02
<b>2014</b>	Machinery and equipment n.e.c.	1,62E+01	3,97E+02
<b>2015</b>	Machinery and equipment n.e.c.	1,59E+01	3,99E+02
<b>2016</b>	Machinery and equipment n.e.c.	1,66E+01	4,02E+02
<b>2003</b>	Motor vehicles, trailers and semi-trailers	4,11E+01	9,74E+02
<b>2004</b>	Motor vehicles, trailers and semi-trailers	3,94E+01	9,73E+02
<b>2005</b>	Motor vehicles, trailers and semi-trailers	4,18E+01	9,73E+02
<b>2006</b>	Motor vehicles, trailers and semi-trailers	4,41E+01	9,78E+02
<b>2007</b>	Motor vehicles, trailers and semi-trailers	4,62E+01	9,86E+02
<b>2008</b>	Motor vehicles, trailers and semi-trailers	4,61E+01	9,93E+02
<b>2009</b>	Motor vehicles, trailers and semi-trailers	3,20E+01	9,87E+02
<b>2010</b>	Motor vehicles, trailers and semi-trailers	3,40E+01	9,82E+02
<b>2011</b>	Motor vehicles, trailers and semi-trailers	3,74E+01	9,80E+02
<b>2012</b>	Motor vehicles, trailers and semi-trailers	3,59E+01	9,77E+02
<b>2013</b>	Motor vehicles, trailers and semi-trailers	3,53E+01	9,71E+02
<b>2014</b>	Motor vehicles, trailers and semi-trailers	3,54E+01	9,66E+02
<b>2015</b>	Motor vehicles, trailers and semi-trailers	3,77E+01	9,64E+02
<b>2016</b>	Motor vehicles, trailers and semi-trailers	4,38E+01	9,69E+02
<b>2003</b>	Other manufacturing	3,37E+00	7,86E+00
<b>2004</b>	Other manufacturing	3,56E+00	8,05E+00
<b>2005</b>	Other manufacturing	3,64E+00	8,15E+00
<b>2006</b>	Other manufacturing	3,65E+00	8,15E+00
<b>2007</b>	Other manufacturing	3,67E+00	8,19E+00
<b>2008</b>	Other manufacturing	3,47E+00	8,01E+00



2009	Other manufacturing	2,93E+00	7,50E+00
2010	Other manufacturing	3,01E+00	7,61E+00
2011	Other manufacturing	2,89E+00	7,52E+00
2012	Other manufacturing	2,89E+00	7,52E+00
2013	Other manufacturing	2,88E+00	7,41E+00
2014	Other manufacturing	3,31E+00	7,77E+00
2015	Other manufacturing	4,22E+00	9,06E+00
2016	Other manufacturing	4,43E+00	1,05E+01
2003	Other non-metallic mineral products	1,53E+03	2,89E+04
2004	Other non-metallic mineral products	1,65E+03	2,91E+04
2005	Other non-metallic mineral products	1,70E+03	2,92E+04
2006	Other non-metallic mineral products	1,83E+03	2,94E+04
2007	Other non-metallic mineral products	1,84E+03	2,95E+04
2008	Other non-metallic mineral products	1,68E+03	2,95E+04
2009	Other non-metallic mineral products	1,41E+03	2,93E+04
2010	Other non-metallic mineral products	1,25E+03	2,91E+04
2011	Other non-metallic mineral products	1,18E+03	2,89E+04
2012	Other non-metallic mineral products	1,16E+03	2,88E+04
2013	Other non-metallic mineral products	1,09E+03	2,86E+04
2014	Other non-metallic mineral products	1,09E+03	2,85E+04
2015	Other non-metallic mineral products	1,15E+03	2,84E+04
2016	Other non-metallic mineral products	1,18E+03	2,83E+04
2003	Other transport equipment	1,40E+00	3,05E+01
2004	Other transport equipment	1,73E+00	3,09E+01
2005	Other transport equipment	1,73E+00	3,12E+01
2006	Other transport equipment	1,69E+00	3,16E+01
2007	Other transport equipment	1,67E+00	3,19E+01
2008	Other transport equipment	1,63E+00	3,22E+01
2009	Other transport equipment	1,27E+00	3,22E+01
2010	Other transport equipment	1,33E+00	3,22E+01
2011	Other transport equipment	1,11E+00	3,20E+01
2012	Other transport equipment	1,06E+00	3,17E+01
2013	Other transport equipment	1,06E+00	3,13E+01
2014	Other transport equipment	1,10E+00	3,10E+01
2015	Other transport equipment	1,12E+00	3,07E+01
2016	Other transport equipment	1,30E+00	3,07E+01
2003	Paper and paper products	1,07E+02	1,07E+02
2004	Paper and paper products	1,10E+02	1,10E+02
2005	Paper and paper products	1,10E+02	1,10E+02
2006	Paper and paper products	1,13E+02	1,13E+02
2007	Paper and paper products	1,22E+02	1,22E+02
2008	Paper and paper products	1,14E+02	1,14E+02

<b>2009</b>	Paper and paper products	1,01E+02	1,01E+02
<b>2010</b>	Paper and paper products	1,07E+02	1,07E+02
<b>2011</b>	Paper and paper products	1,05E+02	1,05E+02
<b>2012</b>	Paper and paper products	1,04E+02	1,04E+02
<b>2013</b>	Paper and paper products	1,05E+02	1,05E+02
<b>2014</b>	Paper and paper products	1,08E+02	1,08E+02
<b>2015</b>	Paper and paper products	1,10E+02	1,10E+02
<b>2016</b>	Paper and paper products	1,12E+02	1,12E+02
<b>2003</b>	Rubber and plastic products	4,62E+01	7,60E+02
<b>2004</b>	Rubber and plastic products	7,85E+01	7,93E+02
<b>2005</b>	Rubber and plastic products	6,00E+01	8,07E+02
<b>2006</b>	Rubber and plastic products	6,69E+01	8,28E+02
<b>2007</b>	Rubber and plastic products	6,35E+01	8,45E+02
<b>2008</b>	Rubber and plastic products	6,00E+01	8,58E+02
<b>2009</b>	Rubber and plastic products	4,77E+01	8,59E+02
<b>2010</b>	Rubber and plastic products	5,28E+01	8,65E+02
<b>2011</b>	Rubber and plastic products	6,07E+01	8,71E+02
<b>2012</b>	Rubber and plastic products	5,83E+01	8,78E+02
<b>2013</b>	Rubber and plastic products	5,74E+01	8,84E+02
<b>2014</b>	Rubber and plastic products	7,75E+01	9,13E+02
<b>2015</b>	Rubber and plastic products	6,72E+01	9,32E+02
<b>2016</b>	Rubber and plastic products	9,71E+01	9,80E+02
<b>2003</b>	Textiles	5,14E+00	6,29E+01
<b>2004</b>	Textiles	5,25E+00	6,31E+01
<b>2005</b>	Textiles	6,16E+00	6,42E+01
<b>2006</b>	Textiles	6,65E+00	6,57E+01
<b>2007</b>	Textiles	6,81E+00	6,77E+01
<b>2008</b>	Textiles	6,55E+00	6,93E+01
<b>2009</b>	Textiles	6,15E+00	7,05E+01
<b>2010</b>	Textiles	6,25E+00	7,16E+01
<b>2011</b>	Textiles	6,19E+00	7,27E+01
<b>2012</b>	Textiles	6,06E+00	7,37E+01
<b>2013</b>	Textiles	6,62E+00	7,52E+01
<b>2014</b>	Textiles	6,71E+00	7,68E+01
<b>2015</b>	Textiles	7,04E+00	7,87E+01
<b>2016</b>	Textiles	7,39E+00	8,08E+01
<b>2003</b>	Tobacco products	1,45E+00	1,45E+00
<b>2004</b>	Tobacco products	1,16E+00	1,16E+00
<b>2005</b>	Tobacco products	1,03E+00	1,03E+00
<b>2006</b>	Tobacco products	1,01E+00	1,01E+00
<b>2007</b>	Tobacco products	1,01E+00	1,01E+00
<b>2008</b>	Tobacco products	9,37E-01	9,37E-01

<b>2009</b>	Tobacco products	8,84E-01	8,84E-01
<b>2010</b>	Tobacco products	7,46E-01	7,46E-01
<b>2011</b>	Tobacco products	7,86E-01	7,86E-01
<b>2012</b>	Tobacco products	7,57E-01	7,57E-01
<b>2013</b>	Tobacco products	7,10E-01	7,10E-01
<b>2014</b>	Tobacco products	6,72E-01	6,72E-01
<b>2015</b>	Tobacco products	7,09E-01	7,09E-01
<b>2016</b>	Tobacco products	4,03E-01	4,03E-01
<b>2003</b>	Wearing apparel	2,77E+00	1,01E+01
<b>2004</b>	Wearing apparel	2,73E+00	1,00E+01
<b>2005</b>	Wearing apparel	4,68E+00	1,19E+01
<b>2006</b>	Wearing apparel	4,95E+00	1,41E+01
<b>2007</b>	Wearing apparel	5,22E+00	1,65E+01
<b>2008</b>	Wearing apparel	5,10E+00	1,82E+01
<b>2009</b>	Wearing apparel	4,85E+00	1,95E+01
<b>2010</b>	Wearing apparel	5,00E+00	1,95E+01
<b>2011</b>	Wearing apparel	5,01E+00	1,94E+01
<b>2012</b>	Wearing apparel	4,50E+00	1,89E+01
<b>2013</b>	Wearing apparel	4,69E+00	1,86E+01
<b>2014</b>	Wearing apparel	5,02E+00	1,89E+01
<b>2015</b>	Wearing apparel	4,80E+00	1,89E+01
<b>2016</b>	Wearing apparel	5,01E+00	1,90E+01
<b>2003</b>	Wood and of products of wood and cork*	2,30E+01	2,50E+02
<b>2004</b>	Wood and of products of wood and cork*	2,35E+01	2,51E+02
<b>2005</b>	Wood and of products of wood and cork*	2,46E+01	2,52E+02
<b>2006</b>	Wood and of products of wood and cork*	2,69E+01	2,55E+02
<b>2007</b>	Wood and of products of wood and cork*	2,93E+01	2,60E+02
<b>2008</b>	Wood and of products of wood and cork*	2,85E+01	2,62E+02
<b>2009</b>	Wood and of products of wood and cork*	2,39E+01	2,60E+02
<b>2010</b>	Wood and of products of wood and cork*	2,33E+01	2,61E+02
<b>2011</b>	Wood and of products of wood and cork*	2,50E+01	2,62E+02
<b>2012</b>	Wood and of products of wood and cork*	2,61E+01	2,63E+02
<b>2013</b>	Wood and of products of wood and cork*	2,63E+01	2,64E+02
<b>2014</b>	Wood and of products of wood and cork*	2,67E+01	2,65E+02
<b>2015</b>	Wood and of products of wood and cork*	2,81E+01	2,66E+02
<b>2016</b>	Wood and of products of wood and cork*	2,98E+01	2,69E+02

Figures:

Number of chemicals by chemical function

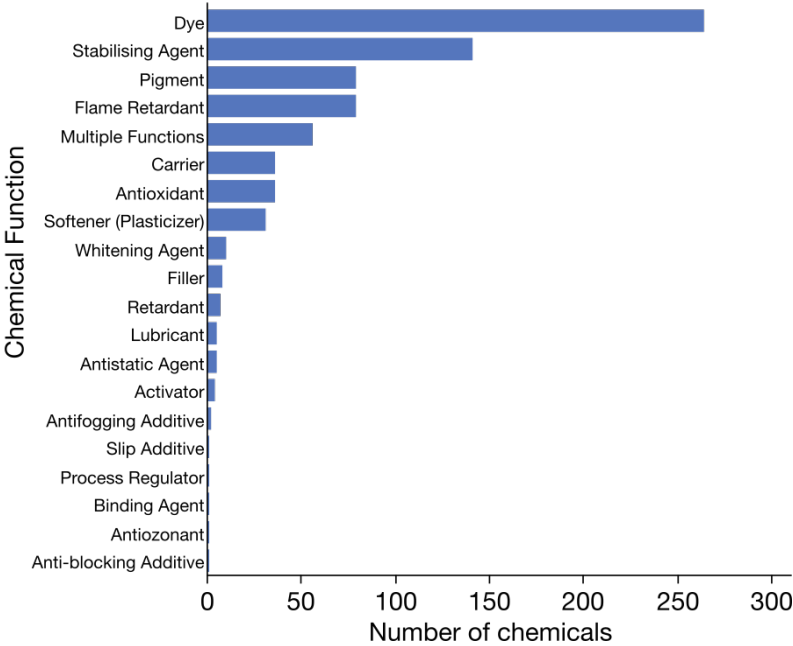


Figure s1: Number of chemicals in the dataset, associated with certain chemical functions.

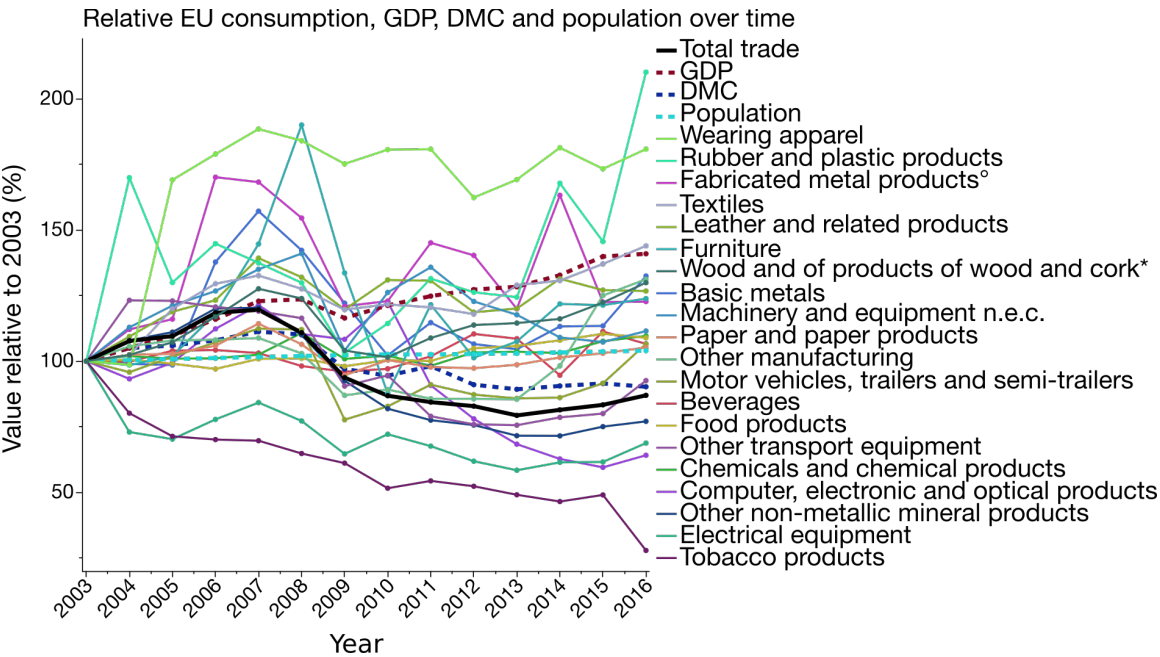


Figure s2: Consumption (mass), GDP, Domestic Material Consumption (DMC) and population data in the EU 28, relative to 2003. Main categories refer to 2-digit PRODCOM codes. Note that the mass is for PRODCOM codes included in the Filtered dataset only (i.e. not all codes under each 2-digit code are included). All data from Eurostat.

## Most consumed product categories by mass in 2016

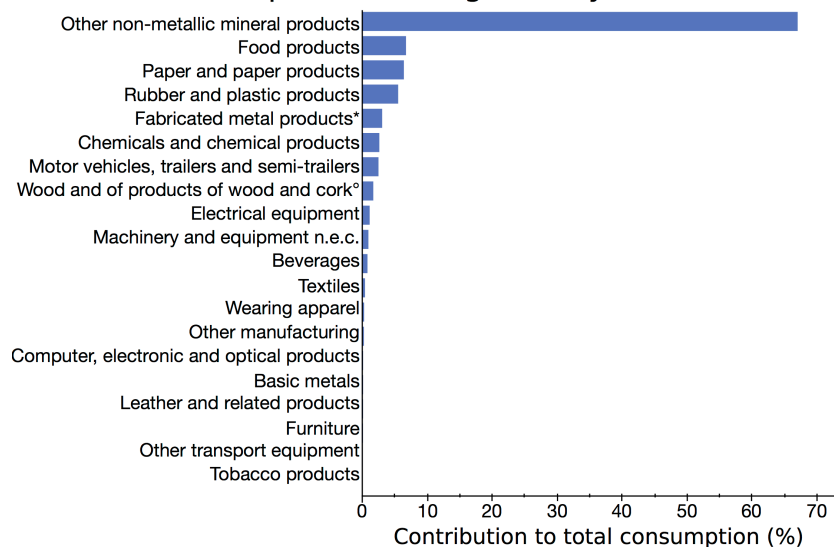


Figure s3: Fractions of the most consumed product categories (mass) by 2-digit PRODCOM codes in the filtered dataset. As not all PRODCOM codes are included in this dataset, these values are not representative of the total consumption in these categories. \*Fabricated metal products, except machinery and equipment, \*Wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials.

## Changes over time for products and chemicals

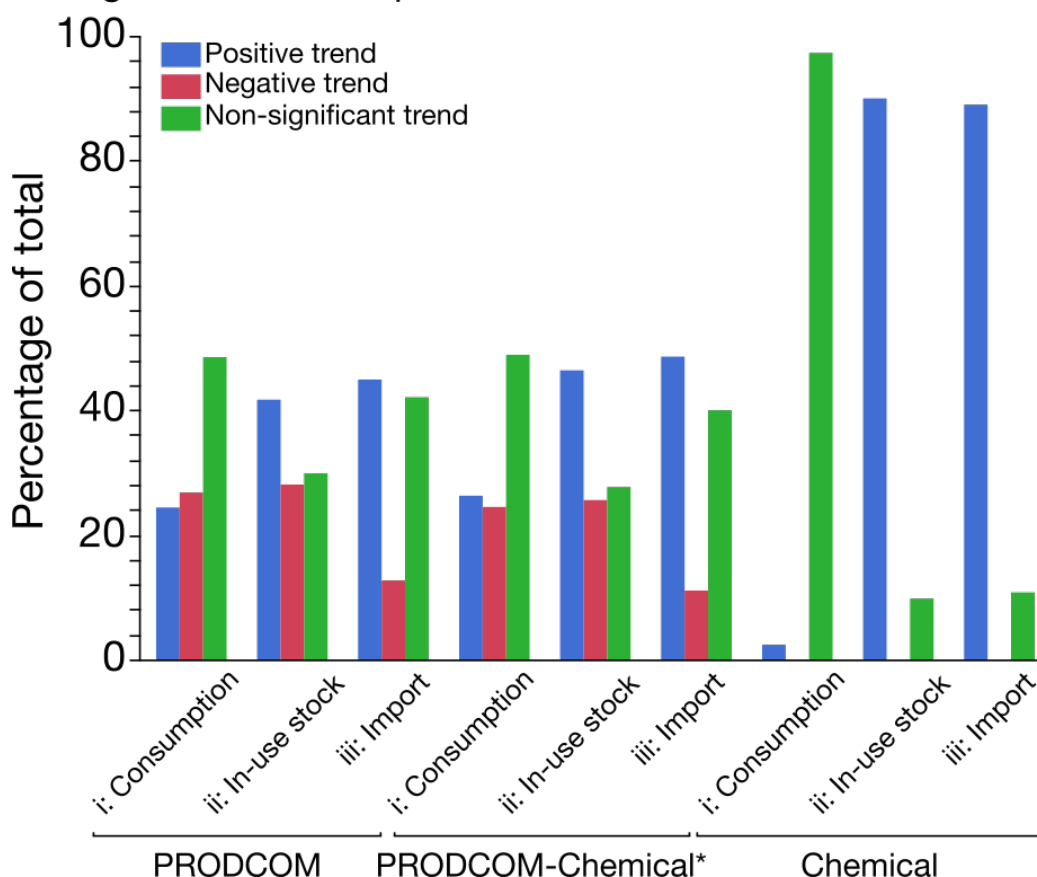
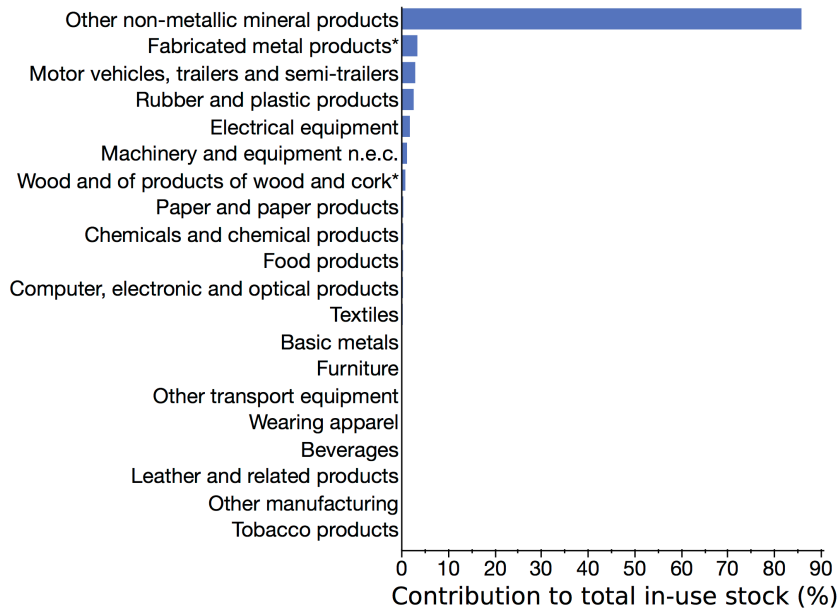


Figure s4: Results of the Mann-Kendall analysis assessing the change over time (2003-2016) in i) the consumed mass per year, ii) the estimated mass of the in-use stocks and iii) the imported mass for products and chemicals. To test for significance  $\alpha$  was set at 0.05. \*The category PRODCOM-Chemical refers to the PRODCOM codes for which chemical data was available. The category Chemical refers to the 768 chemicals that were linked to these PRODCOM codes.

1 Largest in-use stocks by mass in 2016



2  
3 Figure s5: Fractions of the categories with the largest in-use stocks (mass) by 2-digit PRODCOM codes in the filtered dataset.  
4 As not all PRODCOM codes are included in this dataset, these values are not representative of the total consumption in these  
5 categories. \*Fabricated metal products, except machinery and equipment, \*Wood and of products of wood and cork, except  
6 furniture; manufacture of articles of straw and plaiting materials.

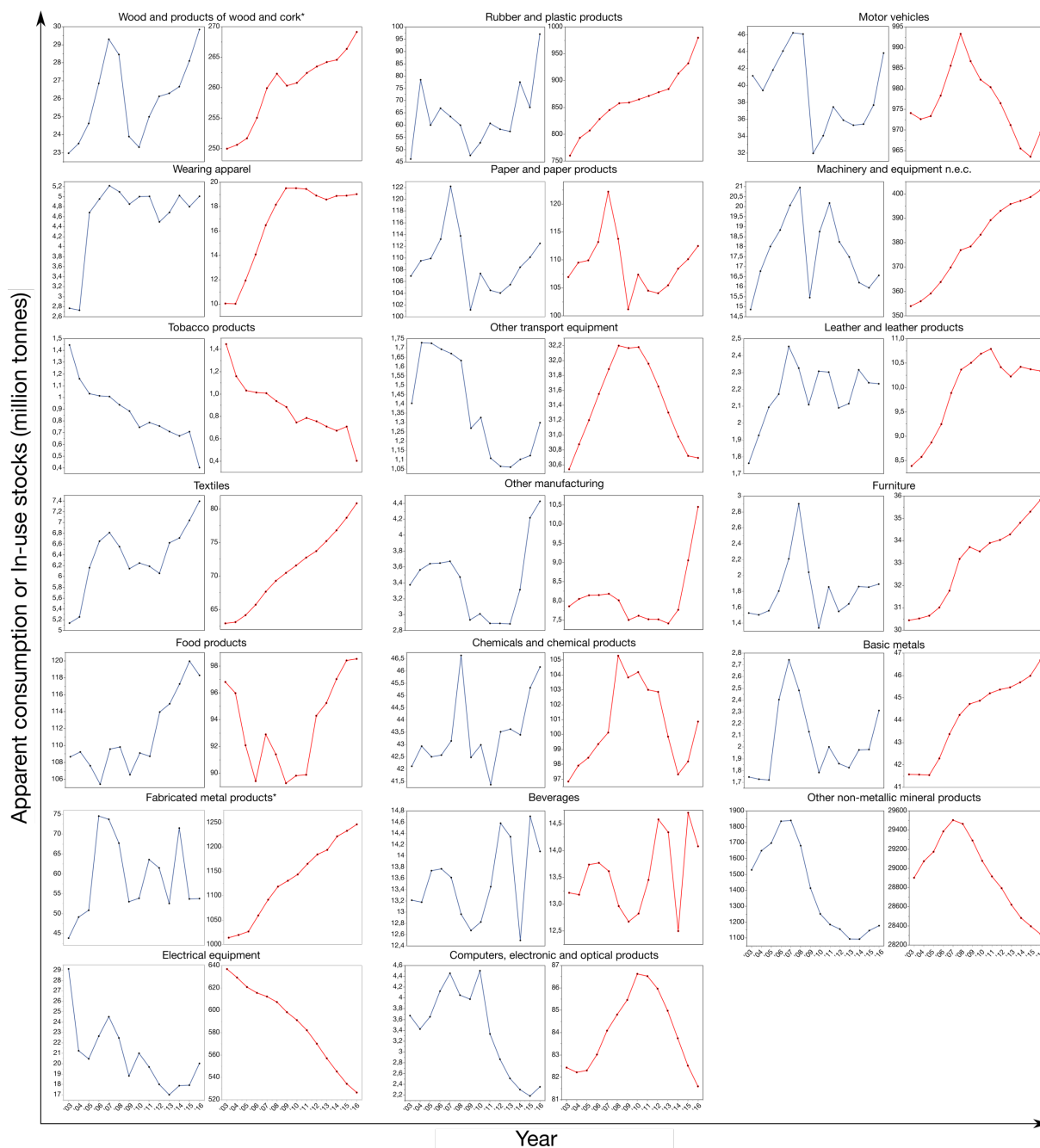


Figure s6: Apparent consumption (left, blue) and in-use stocks (right, red) for each of the 2-digit product categories.  
 \*Fabricated metal products, except machinery and equipment, Wood and of products of wood and cork, except furniture;  
 manufacture of articles of straw and plaiting materials.

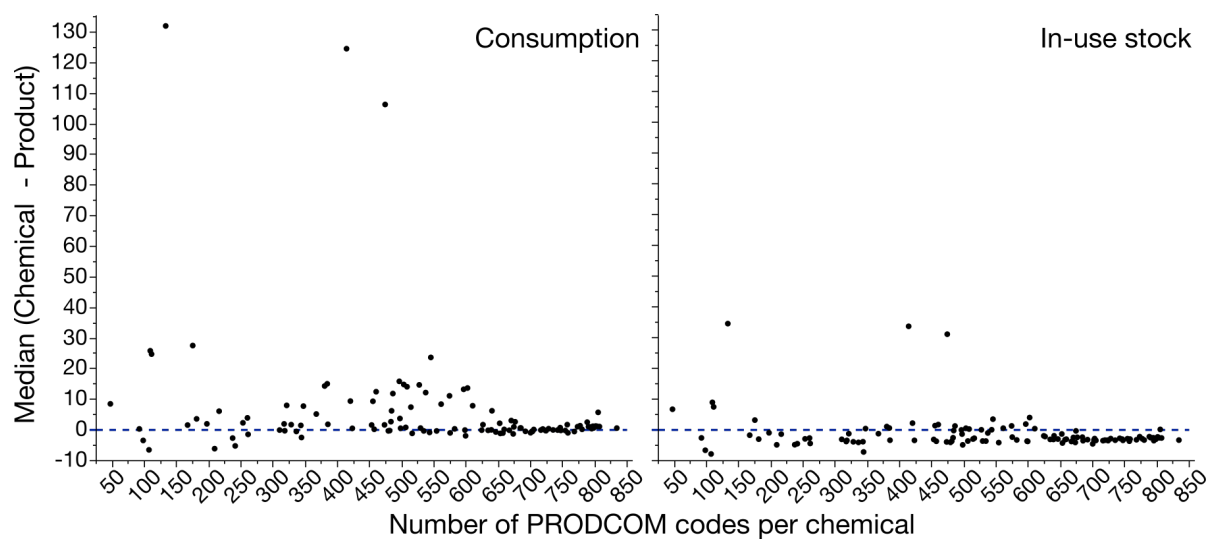


Figure s7: The median of the difference between the consumption or in-use stocks of chemicals and the consumption or in-use stocks of all PRODCOM codes for which there was chemical data, respectively.