

## Proposal environmental goods in CPC

### Introduction

Environmental products are produced, designed and manufactured for purposes of environmental protection and resource management (SEEA CF). There is an increasing demand to provide high quality data for these products in macro-economic statistics, but also in environmental statistics and accounts. For this, a comprehensive classification is needed, which CPC, as the overarching classification for products, can provide. In this note we focus on (physical) environmental products, environmental services will be discussed in another note.

Environmental goods can be made more visible in the CPC by making relatively small changes which fit within the existing structure.

It should be noted that the CPC is a relatively aggregated classification system in comparison to for example the Harmonized System. Some environmental goods, for example, specific bio-based chemicals, are not suitable to be included in CPC because they need to be classified at a highly detailed level. Some environmental goods, such as bio-based monomers have not been included principally for this reason. It may be possible to include such goods. However this would require a broader deepening of the CPC, and this in turn would require specialist knowledge of chemistry.

Below we propose several changes to the CPC to facilitate the inclusion of environmental goods. We will discuss possible changes in the loosely the order of their position in the CPC.

### 28 Knitted or crocheted fabrics; wearing apparel

Used apparel can be considered an environmental good. The current situation regarding the categories for apparel is given below

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<b>282</b>	<b>Wearing apparel, except fur apparel</b>
2821	Panty hose, tights, stockings, socks and other hosiery, knitted or crocheted
2822	Wearing apparel, knitted or crocheted
2823	Wearing apparel, of textile fabric, not knitted or crocheted; brassieres, corsets, suspenders and similar articles, whether or not knitted or crocheted
2824	Apparel and clothing accessories, of leather, composition leather or plastics
283	Tanned or dressed furskins and artificial fur; articles thereof (except headgear)
2825	Garments made up of felt or nonwovens; garments made up of textile fabrics impregnated or coated with plastics, rubber or other materials
2826	Hats and headgear
<b>283</b>	<b>Tanned or dressed furskins and artificial fur; articles thereof (except headgear)</b>
2831	Tanned or dressed furskins
2832	Articles of apparel, clothing accessories and other articles of furskin (except headgear)
2833	Artificial fur and articles thereof (except headgear)

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Our suggestion is to add a “used/second hand articles of apparel” to all categories relating to apparel. Our suggestion is thus as follows

**282 Wearing apparel, except fur apparel**

2821 Panty hose, tights, stockings, socks and other hosiery, knitted or crocheted

2822 Wearing apparel, knitted or crocheted

2823 Wearing apparel, of textile fabric, not knitted or crocheted; brassieres, corsets, suspenders and similar articles, whether or not knitted or crocheted

2824 Apparel and clothing accessories, of leather, composition leather or plastics

2825 Garments made up of felt or nonwovens; garments made up of textile fabrics impregnated or coated with plastics, rubber or other materials

2826 Hats and headgear

2827 Used/second hand apparel of the type covered in classes 2821 to 2826

**283 Tanned or dressed furskins and artificial fur; articles thereof (except headgear)**

2831 Tanned or dressed furskins

2832 Articles of apparel, clothing accessories and other articles of furskin (except headgear)

Used/second hand articles of apparel, clothing accessories and other articles of furskin (except headgear)

2833 headgear)

2834 Artificial fur and articles thereof (except headgear)

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**347 Epoxide resins**

Epoxide resins from glycerin are a substitute for fossil-based epoxide resin and already account for a substantial market share. Epoxide resins fall under the following category, which has no underlying categories. Note that there the 4-digit position 3475 is currently unused. The current situation is as follows.

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3474 Polyacetals, other polyethers and epoxide resins, in primary forms;  
polycarbonates, alkyd resins, polyallyl esters and other polyesters, in primary forms

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We propose the following

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<b>3474</b>	<b>Polyacetals and other polyethers, in primary forms; polycarbonates, alkyd resins, polyallyl esters and other polyesters, in primary forms</b>
<b>3745</b>	<b>Epoxide resins of glycerine or otherwise</b>
37451	Epoxide resins of glycerine
37452	Epoxide resins n.e.c.

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### 379 Insulation materials

Currently insulation materials (heat and sound) are not explicitly included in the CPC. Insulation materials are most often types of rock wool and as such, should be included under 379 Other non-metallic mineral products n.e.c.. Currently, the situation is as follows.

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<b>379</b>	<b>Other non-metallic mineral products n.e.c.</b>
3791	Millstones, grindstones, grinding wheels and the like, without frameworks, for working stones, and parts thereof, of natural stone, of agglomerated natural or artificial abrasives, or of ceramics; natural or artificial abrasive powder or grain, on a base of textile, paper or other material
3792	Fabricated asbestos fibres; mixtures with a basis of asbestos or with a basis of asbestos and magnesium carbonate; articles of such mixtures, or of asbestos
3793	Articles of asphalt or of similar material
3794	Bituminous mixtures based on natural and artificial stone materials and bitumen, natural asphalt or related substances as a binder
3795	Artificial graphite; colloidal or semi-colloidal graphite; preparations based on graphite or other carbon in the form of semi-manufactures
3796	Artificial corundum
3799	Non-metallic mineral products n.e.c. (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat)

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Accordingly, insulation materials are currently to be included under 3799 Non-metallic mineral products n.e.c.. It is suggested to add a category closely corresponding to Harmonized System category 6806. Accordingly, category 3799 must also be modified. Our suggestion is therefore as follows.

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<b>379</b>	<b>Other non-metallic mineral products n.e.c.</b>
3791	Millstones, grindstones, grinding wheels and the like, without frameworks, for working stones, and parts thereof, of natural stone, of agglomerated natural or artificial abrasives, or of ceramics; natural or artificial abrasive powder or grain, on a base of textile, paper or other material
3792	Fabricated asbestos fibres; mixtures with a basis of asbestos or with a basis of asbestos and magnesium carbonate; articles of such mixtures, or of asbestos
3793	<i>Slag-wool, rock-wool and similar mineral wools excluding asbestos; exfoliated vermiculite, expanded clays, foamed slag and similar expanded mineral materials; mixtures and articles of heat-insulating, sound-insulating or sound-absorbing mineral materials.</i>
3794	Articles of asphalt or of similar material
3795	Bituminous mixtures based on natural and artificial stone materials and bitumen, natural asphalt or related substances as a binder
3796	Artificial graphite; colloidal or semi-colloidal graphite; preparations based on graphite or other carbon in the form of semi-manufactures
3797	Artificial corundum
3799	Non-metallic mineral products n.e.c. (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of peat)

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#### 4342 Waste processing furnaces

Steenblik (2020) explains how various types of waste processing furnaces have been delineated in the new version of Harmonized System. It is proposed to mirror these additions as much as possible because this facilitates the identification of the specific type of furnace, which is in turn necessary to identify the furnace as an environmental good. The relevant categories fall under 43 General-purpose machinery. Currently the situation is as follows

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<b>434</b>	<b>Ovens and furnace burners and parts thereof</b>
4342	Industrial or laboratory furnaces and ovens, except non-electric bakery ovens; other industrial or laboratory induction or dielectric heating equipment
4343	Parts for the goods of subclasses 43410 and 43420; parts of non-electric bakery ovens

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We suggest the following.

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<b>434</b>	<b>Ovens and furnace burners and parts thereof</b>
4342	Resistance heated industrial or laboratory furnaces and ovens except non-electric bakery ovens
43421	<i>Hot isostatic presses</i>
43422	<i>Other</i>
43423	<i>Furnaces and ovens functioning by induction or dielectric loss</i>
4343	Other furnaces and ovens
43431	<i>Electron beam furnaces</i>
43432	<i>Plasma and vacuum arc furnaces</i>
43433	<i>Other</i>
4344	Parts for the goods of subclasses 43410, 43420 and 43430; parts of non-electric bakery ovens

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#### 4482 Domestic cooking and heating equipment, non-electric

An extra 5-digit category can be added to this group for solar water heaters. Currently the final category under 4482 is

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44826	Water heaters, instantaneous or storage, non-electric
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We suggest the following:

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44826	Water heaters, instantaneous or storage, non-electric, non-solar
44827	<i>Solar water heaters</i>

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#### 4491 3D-printers (machines for additive manufacturing)

3D-printers may be considered environmental goods. The appropriate place to include 3D-printers is in 4491 Other special purpose machinery. However, there are no 5 digit categories available under 4491. There are however positions available under 449. The current situation is

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<b>4491</b>	<b>Other special-purpose machinery</b>
44911	Centrifugal clothes driers
44912	Dryers for wood, paper pulp, paper or paperboard and for other materials except agriculture products
44913	Machinery for making pulp of fibrous cellulosic material or for making or finishing paper or paperboard; machinery (except bookbinding machinery) for making up paper pulp, paper or paperboard
44914	Bookbinding machinery; machinery for type-setting and the like; printing machinery and machines for uses ancillary to printing (except office type sheet-fed offset printing machinery)
44915	Machinery n.e.c. for working rubber or plastics or for the manufacture of products from these materials
44916	Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (except ingot moulds), metal carbides, glass, mineral materials, rubber or plastics
44917	Stand-alone photocopiers, printers and facsimile machines
44918	Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays
44919	Special-purpose machinery n.e.c. (including machinery for isotopic separation, machines for assembling electric lamps in glass envelopes, machines for manufacturing glassware and rope making machines)
<b>4492</b>	<b>Parts n.e.c. for special-purpose machinery</b>

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We suggest to shift 4492 (parts) to 4493 and to use the newly freed up 4492 position for a new category. There are two options for this new category. The first option is to consider 3D-printers as printers and to merge them in a new category with 44917, which encompasses traditional printers. The second option is to consider 3D-printers as machines for additive manufacturing, in which case 3D-printers can be merged into a new category with 44915 which encompasses machines for the manufacture of rubber and plastics. It is our opinion that the term 3D-printing is misleading because printing is generally considered to be a process involving paper, or sometimes cloth. Because this is not the case with 3D-printing, our preference is to consider 3D-printers as machines for additive

manufacturing and to place group them in a new category with the current category 44915. Our suggestion is thus as follows.

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<b>4491</b>	<b>Other special-purpose machinery</b>
44911	Centrifugal clothes driers
44912	Dryers for wood, paper pulp, paper or paperboard and for other materials except agriculture products
44913	Machinery for making pulp of fibrous cellulosic material or for making or finishing paper or paperboard; machinery (except bookbinding machinery) for making up paper pulp, paper or paperboard
44914	Bookbinding machinery; machinery for type-setting and the like; printing machinery and machines for uses ancillary to printing (except office type sheet-fed offset printing machinery)
44915	Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (except ingot moulds), metal carbides, glass, mineral materials, rubber or plastics
44916	Stand-alone photocopiers, printers and facsimile machines
44917	Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays
44918	Special-purpose machinery n.e.c. (including machinery for isotopic separation, machines for assembling electric lamps in glass envelopes, machines for manufacturing glassware and rope making machines)
<b>4492</b>	<b>Machinery n.e.c. for working rubber or plastics or for the manufacture of products from these materials</b>
44921	Injection-moulding machines; extruders; blow-moulding machines; vacuum-moulding machines and other thermoforming machines; other machinery for moulding or otherwise forming except for additive manufacturing (3D-printing); machinery for retreading pneumatic tyres; presses.
44922	Machines for additive manufacturing (3D-printing)
<b>4493</b>	<b>Parts n.e.c. for special-purpose machinery</b>

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#### [4621 Electricity distribution or control apparatus](#)

This category is a suitable place to include charging stations for electric and hybrid vehicles.

Currently, only 5 of the 5-digit categories are employed. We therefore propose to add an additional category as follows

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46219	Charging stations for electric and hybrid vehicles
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#### [4653 and 4715 concerning LEDs \(Light Emitting Diodes\)](#)

LEDs can be considered environmental goods if they are used for the purposes of energy reduction. This occurs in the context of light equipment (4653). LEDs are also classified as electronic components under 471. We therefore suggest several changes relating to LEDs. These changes will facilitate separate identification of LEDs as an environmental good, and also clarify the classification with regards to LEDs in general. Currently, the situation is as follows.

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<b>4651</b>	<b>Electric filament or discharge lamps; arc lamps</b>
<b>4653</b>	<b>Lighting equipment</b>
46531	Portable electric lamps designed to function by their own source of energy (except those for cycles or motor vehicles); electric ceiling or wall lighting fittings (except those for lighting public open spaces or thorough-fares); electric table, desk, bedside or floor-standing lamps; non-electrical lamps and lighting fittings; illuminated signs, illuminated name-plates and the like
46532	Lighting sets of a kind used for Christmas trees
46539	Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)
<b>4654</b>	<b>Parts for the goods of classes 4651 and 4653</b>
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<b>4715</b>	<b>Diodes, transistors and similar semi-conductor devices; photosensitive semi-conductor devices; light emitting diodes; mounted piezo-electric crystals</b>
47150	Diodes, transistors and similar semi-conductor devices; photosensitive semi-conductor devices; light emitting diodes; mounted piezo-electric crystals

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Our suggestion is as follows

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<b>4651</b>	<b>Electric filament or discharge lamps; arc lamps</b>
<b>4653</b>	<b>Lighting equipment using light emitting diodes</b>
46531	Portable electric lamps designed to function by their own source of energy (except those for cycles or motor vehicles); electric ceiling or wall lighting fittings (except those for lighting public open spaces or thorough-fares); electric table, desk, bedside or floor-standing lamps; non-electrical lamps and lighting fittings; illuminated signs, illuminated name-plates and the like
46532	Lighting sets of a kind used for Christmas trees
46539	Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)
<b>4654</b>	<b>Lighting equipment not using light emitting diodes</b>
46541	Portable electric lamps designed to function by their own source of energy (except those for cycles or motor vehicles); electric ceiling or wall lighting fittings (except those for lighting public open spaces or thorough-fares); electric table, desk, bedside or floor-standing lamps; non-electrical lamps and lighting fittings; illuminated signs, illuminated name-plates and the like
46542	Lighting sets of a kind used for Christmas trees
46549	Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)
46549	Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thorough-fares)
<b>4655</b>	<b>Parts for the goods of classes 4651, 4653 and 4654</b>
...	
<b>4715</b>	<b>Diodes, transistors and similar semi-conductor devices; photosensitive semi-conductor devices; light emitting diodes n.e.c.; mounted piezo-electric crystals</b>
47150	Diodes, transistors and similar semi-conductor devices; photosensitive semi-conductor devices; light emitting diodes n.e.c; mounted piezo-electric crystals

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## 47 Radio, television and communication equipment and apparatus

Second-hand or used products are important for the circular economy but are not explicitly included in the CPC. Division 47 refers to products for which the second-hand/used market is considered to be substantial (Tunn, 2021). We therefore propose to modify division 47 to allow for second-hand/used products. The current situation is as follows

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**4722 Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)**

47221 Line telephone sets with cordless handsets

47222 Telephones for cellular networks or for other wireless networks

47223 Other telephone sets and apparatus for transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)

**4731 Radio broadcast and television receivers**

47311 Radio broadcast receivers (except of a kind used in motor vehicles), whether or not combined with sound recording or reproducing apparatus or a clock

47312 Radio broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles

47313 Television receivers, whether or not combined with radio-broadcast receivers or sound or video recording or reproducing apparatus

47314 Monitors and projectors, not incorporating television reception apparatus and not principally used in an automatic data processing system

47315 Monitors and projectors, principally used in an automatic data processing system

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We suggest the following

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**4722 Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)**

47221 First-hand line telephone sets with cordless handsets

47222 First-hand telephones for cellular networks or for other wireless networks

47223 First-hand other telephone sets and apparatus for transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)

47224 Second-hand or used products of the type in subclasses 47221 to 47224

**4731 Radio broadcast and television receivers**

47311 First-hand radio broadcast receivers (except of a kind used in motor vehicles), whether or not combined with sound recording or reproducing apparatus or a clock

47312 First-hand radio broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles

47313 First-hand television receivers, whether or not combined with radio-broadcast receivers or sound or video recording or reproducing apparatus

47314 First-hand monitors and projectors, not incorporating television reception apparatus and not principally used in an automatic data processing system

47315 First-hand monitors and projectors, principally used in an automatic data processing system

47316 Second-hand or used products of the type in subclasses 47221 to 47224

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#### 4911 Electric and hybrid vehicles

Electric vehicles can be considered an environmental good. We therefore suggest to separate them from other motor vehicles. Currently the situation is as follows.

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#### **4911 Motor vehicles**

49111 Road tractors for semi-trailers

49112 Public-transport type passenger motor vehicles

49113 Motor cars and other motor vehicles principally designed for the transport of persons (except public-transport type vehicles, vehicles specially designed for travelling on snow, and golf cars and similar vehicles)

49114 Motor vehicles n.e.c. for the transport of goods

49115 Crane lorries

49116 Motor vehicles, for the transport of persons, specially designed for travelling on snow; golf cars and similar vehicles

49119 Special-purpose motor vehicles n.e.c.

#### **4912 Parts and accessories n.e.c. of motor vehicles**

49121 Chassis fitted with engines, for motor vehicles

49129 Other parts and accessories n.e.c. of motor vehicles (including brakes, gear boxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, clutches, steering wheels, steering columns, steering boxes, and parts thereof)

#### **4921 Bodies for motor vehicles**

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Our suggestion is as follows

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**4911 Motor vehicles, neither hybrid or electric**

- 49111 Road tractors for semi-trailers, not hybrid or electric
- 49112 Public-transport type passenger motor vehicles, not hybrid or electric
- 49113 Motor cars and other non-electric motor vehicles principally designed for the transport of persons on-road off-road, not hybrid or electric
- 49114 Motor vehicles n.e.c. for the transport of goods, not hybrid or electric
- 49115 Crane lorries, not hybrid or electric
- 49116 Motor vehicles, for the transport of persons, specially designed for travelling on snow; golf cars and similar vehicles, not hybrid or electric
- 49119 Special-purpose motor vehicles n.e.c. not hybrid or electric

**4912 Electric and hybrid motor vehicles**

- 49121 Electric public-transport type passenger motor vehicles
- 49122 Electric motor cars and other motor vehicles principally designed for the transport of persons on-road off-road
- 49123 Electric motor vehicles n.e.c. for the transport of goods
- 49124 Electric vehicles n.e.c.
- 49125 Hybrid public-transport type passenger motor vehicles
- 49126 Hybrid motor cars and other motor vehicles principally designed for the transport of persons on-road off-road
- 49127 Hybrid motor vehicles n.e.c. for the transport of goods
- 49128 Hybrid vehicles n.e.c.

**4913 Parts and accessories n.e.c. of motor vehicles**

- 49131 Chassis fitted with non-electric engines, for motor vehicles
- 49132 Chassis fitted with electric engines, for motor vehicles
- 49133 Chassis fitted with hybrid engines, for motor vehicles
- 49139 Other parts and accessories n.e.c. of motor vehicles (including brakes, gear boxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, clutches, steering wheels, steering columns, steering boxes, and parts thereof)

**4921 Bodies for motor vehicles**

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[4912 Parts and accessories n.e.c. of motor vehicles](#)

This category is a suitable place to include catalytic converters. Currently, only 2 of the 5-digit categories are employed. The current situation is as follows.

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**4912 Parts and accessories n.e.c. of motor vehicles**

- 49121 Chassis fitted with engines, for motor vehicles
  - 49129 Other parts and accessories n.e.c. of motor vehicles (including brakes, gear boxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes, clutches, steering wheels, steering columns, steering boxes, and parts thereof)
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We therefore propose to add an additional category as follows.

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**44912 Parts and accessories n.e.c. of motor vehicles**

- 49121 Chassis fitted with engines, for motor vehicles
  - 49122 Catalytic converters and exhaust pipes including catalytic converters
  - 49129 Other parts and accessories n.e.c. of motor vehicles (including brakes, gear boxes, axles, road wheels, suspension shock absorbers, radiators, silencers, exhaust pipes not including catalytic converters, clutches, steering wheels, steering columns, steering boxes, and parts thereof)
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The new category 49122 is designed to include standalone catalytic converters as well as catalytic converters which are manufactured as part of the larger exhaust system.

#### 448 Heat pumps

Heat pumps can be considered an environmental good. There are several categories which need to be considered. Firstly, and most obviously, heat pumps are explicitly included under 43913, but this excludes domestic type equipment. It is appropriate to have heat pumps closely related to refrigeration equipment as the technology is essentially the same. The category 44817 is appropriate because it refers to domestic water heating and because heat pumps require electricity. Category 4482 is also somewhat appropriate because it includes non-electric central heating boilers and water heaters. While heat pumps do require electricity, it is not the electricity which is used for heating: the electricity simply runs the pump to extract ambient heat. All the relevant positions are provided below.

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**4391 Gas generators; distilling plant; air-conditioning and refrigerating equipment; filtering machinery**

- 43911 Producer gas or water gas generators; acetylene gas generators and similar water process gas generators; distilling or rectifying plant; heat exchange units; machinery for liquefying air or gas
- 43912 Air-conditioning machines
- 43913 Refrigerating and freezing equipment and heat pumps, except household type equipment
- 43914 Filtering or purifying machinery and apparatus, for liquids or gases, except oil filters, petrol filters and air intake filters for internal combustion engines
- 43915 Oil filters, petrol filters and air intake filters for internal combustion engines

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**4481 Domestic electric appliances; non-electric refrigerators and clothes drying machines**

- 44811 Refrigerators and freezers, household type, electric or non-electric
- 44812 Dishwashing machines and clothes or linen washing or drying machines, household type, electric or non-electric
- 44813 Electric blankets
- 44814 Household sewing machines
- 44815 Fans and ventilating or recycling hoods of the domestic type
- 44816 Other small electric domestic appliances (including vacuum cleaners, kitchen waste disposers, food mixers, shavers, hair dryers, smoothing irons, coffee makers and toasters)
- 44817 Electric instantaneous or storage water heaters and immersion heaters; electric space heating apparatus and soil heating apparatus; ovens; cookers, cooking plates, boiling rings, grillers and roasters
- 44818 Electric heating resistors, except of carbon
- 44821 Cooking appliances and plate warmers, non-electric, domestic, of iron or steel

**4482 Domestic cooking and heating equipment, non-electric**

- 44822 Stoves, grates, braziers and similar non-electric domestic appliances (other than cooking appliances and plate warmers) of iron or steel
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- 44823 Radiators for central heating, not electrically heated, of iron or steel
  - 44824 Air heaters and hot air distributors, not electrically heated, incorporating a motor-driven fan or blower, of iron or steel
  - 44825 Central heating boilers, for producing hot water or low pressure steam
  - 44826 Water heaters, instantaneous or storage, non-electric
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Category 4391 is explicitly non-domestic in character, having reference to explicitly industrial products such as gas generators and filters. Accordingly, it is not an appropriate category to include domestic heat pumps. It is however useful to separate heat pump from refrigerating and freezing equipment. We therefore suggest the following regarding 4391.

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**4391 Gas generators; distilling plant; air-conditioning and refrigerating equipment; filtering machinery**

- 43911 Producer gas or water gas generators; acetylene gas generators and similar water process gas generators; distilling or rectifying plant; heat exchange units; machinery for liquefying air or gas
  - 43912 Air-conditioning machines
  - 43913 Refrigerating and freezing equipment, except household type equipment
  - 43914 Heat pumps, except household type equipment.
  - 43915 Filtering or purifying machinery and apparatus, for liquids or gases, except oil filters, petrol filters and air intake filters for internal combustion engines
  - 43916 Oil filters, petrol filters and air intake filters for internal combustion engines
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It remains then to find a suitable place for domestic heat pumps. Class 4482 is an interesting option because it contains categories relating to central heating, but is also problematic because it refers to non-electric equipment. While it is arguable that heat pumps do not generate heat electrically, this distinction is not particularly clear-cut. Given this, and also the technological similarities between heat pumps and refrigerators and freezers, we suggest to add an extra category to 4481. As such, our suggestion is as follows.

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**4481 Domestic electric appliances; non-electric refrigerators and clothes drying machines**

- 44811 Refrigerators and freezers, household type, electric or non-electric
  - 44812 Heat pumps for household use.
  - 44813 Dishwashing machines and clothes or linen washing or drying machines, household type, electric or non-electric
  - 44814 Electric blankets
  - 44815 Household sewing machines
  - 44816 Fans and ventilating or recycling hoods of the domestic type
  - 44817 Other small electric domestic appliances (including vacuum cleaners, kitchen waste disposers, food mixers, shavers, hair dryers, smoothing irons, coffee makers and toasters)
  - 44818 Electric instantaneous or storage water heaters and immersion heaters; electric space heating apparatus and soil heating apparatus; ovens; cookers, cooking plates, boiling rings, grillers and roasters
  - 44819 Electric heating resistors, except of carbon
  - 44821 Cooking appliances and plate warmers, non-electric, domestic, of iron or steel
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## References

Tunn, V (2021 ) [Adding bio-based products and materials to statistical classifications \(cbs.nl\)](#)