

Waste Accounts in the SEEA-CF update

**Meeting of the SEEA Central Framework Technical Committee on the
update of the SEEA Central Framework**

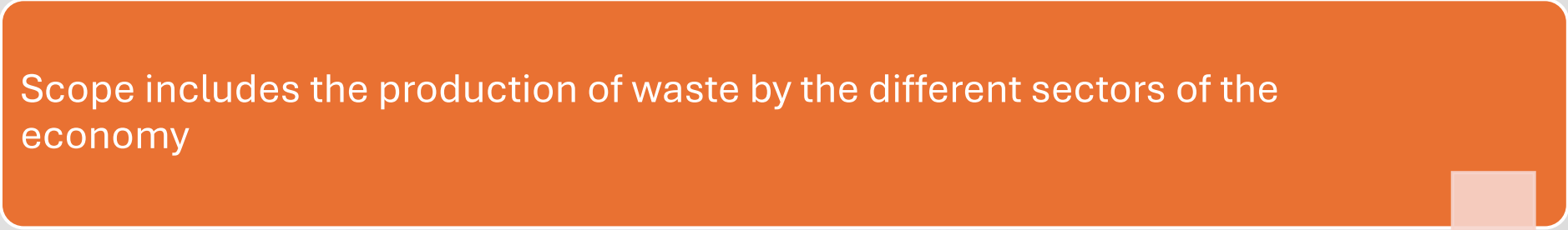
23 & 27 March 2026

Room H-207 (H-Building) Palais des Nations, Geneva, Switzerland

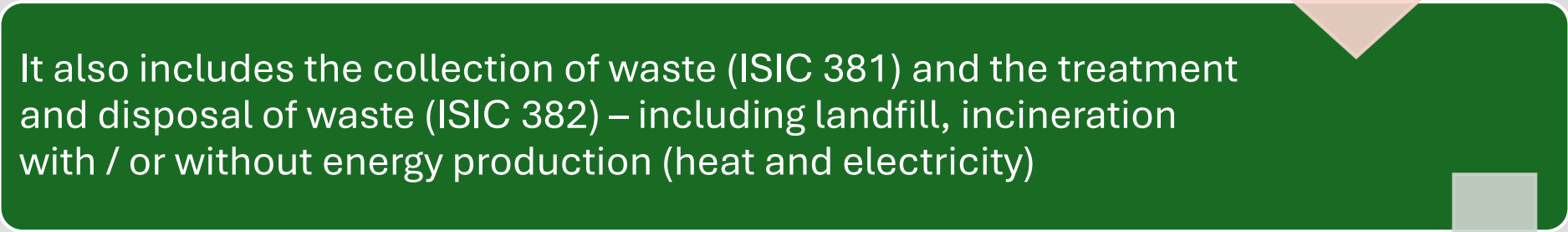
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Waste Accounts – scope/focus is waste

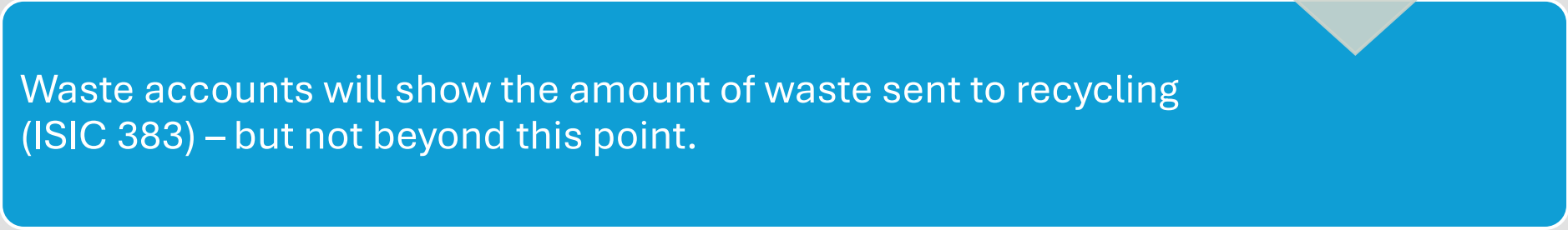
Scope includes the production of waste by the different sectors of the economy



It also includes the collection of waste (ISIC 381) and the treatment and disposal of waste (ISIC 382) – including landfill, incineration with / or without energy production (heat and electricity)



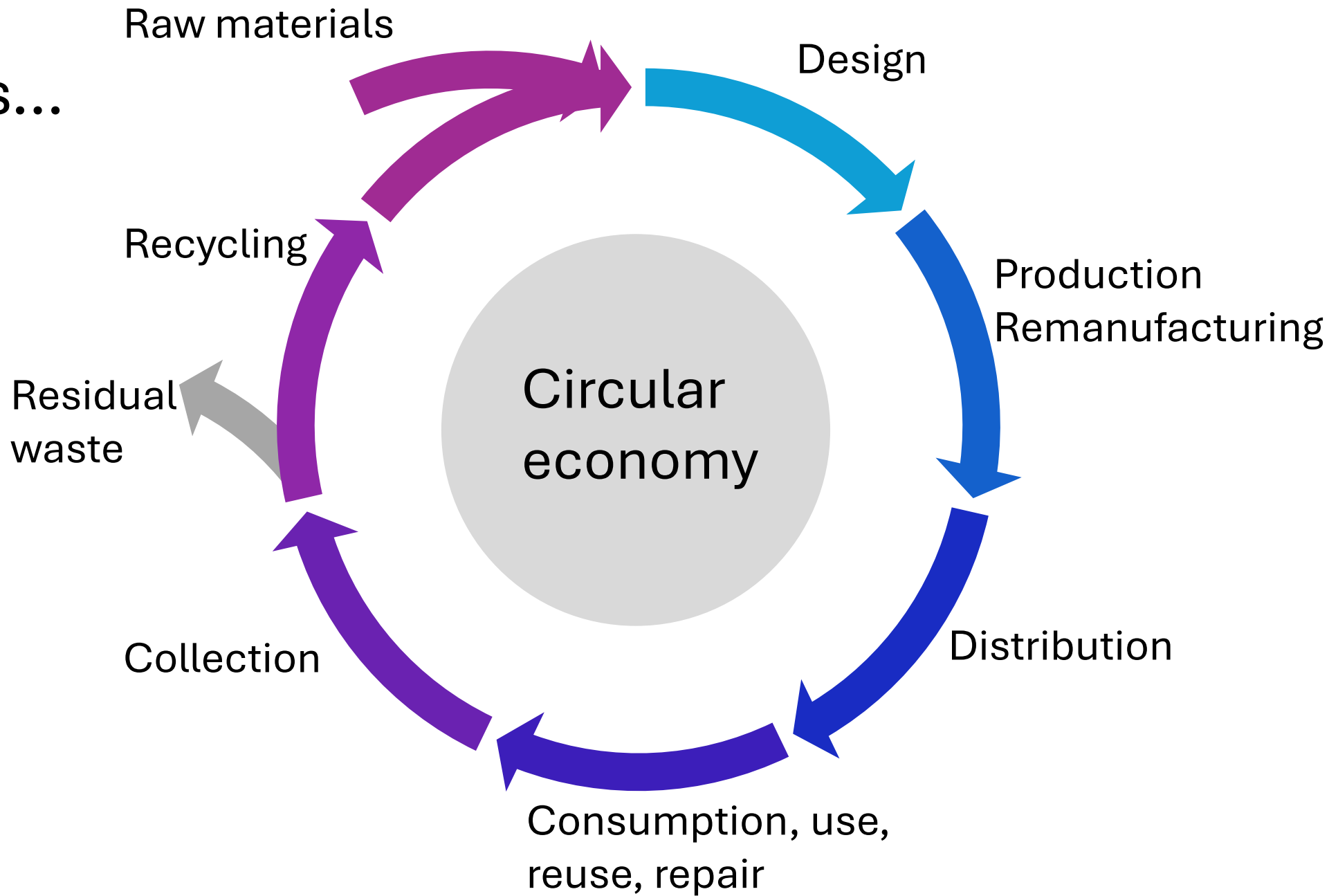
Waste accounts will show the amount of waste sent to recycling (ISIC 383) – but not beyond this point.

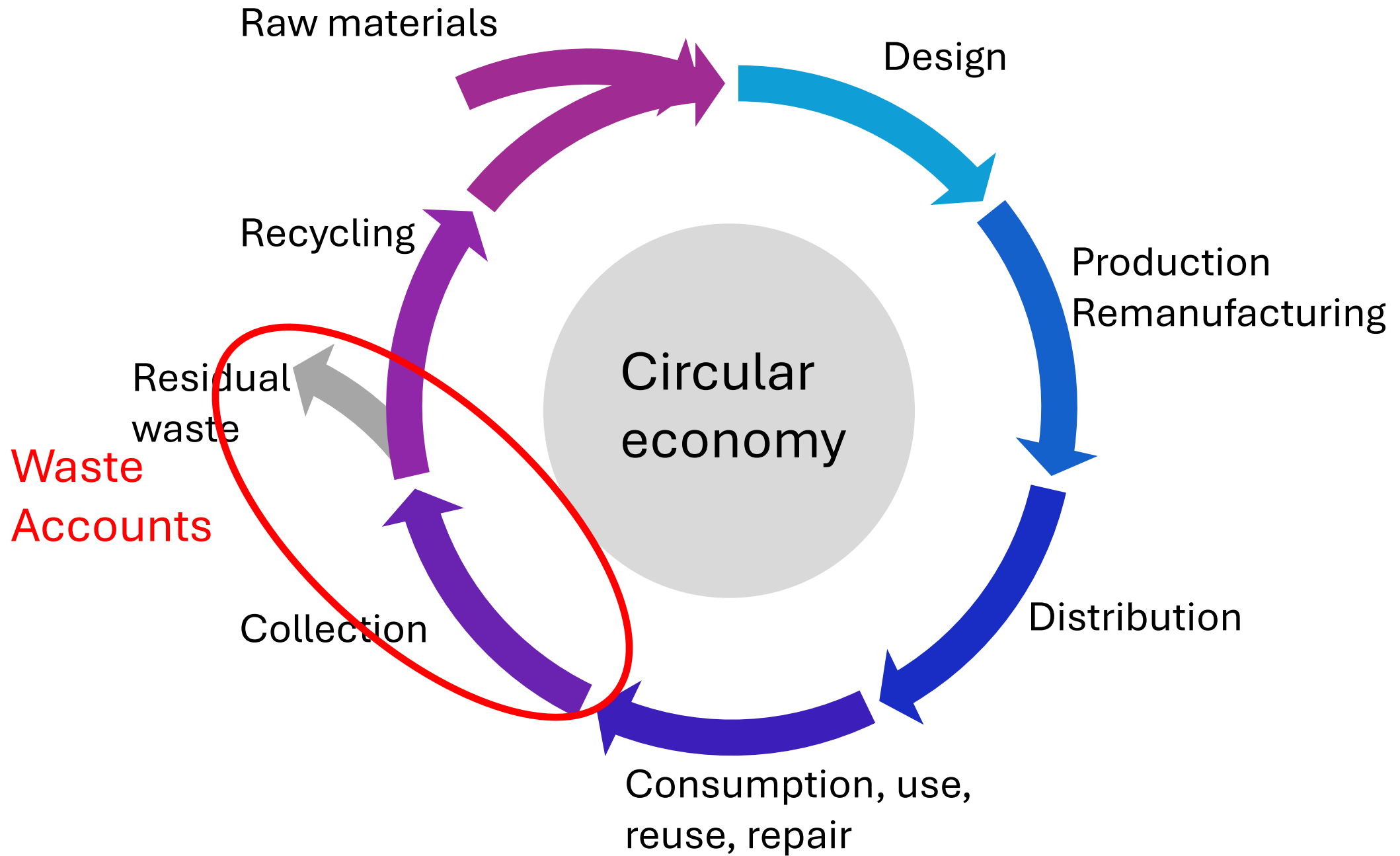


Waste accounts - Focus on “waste”

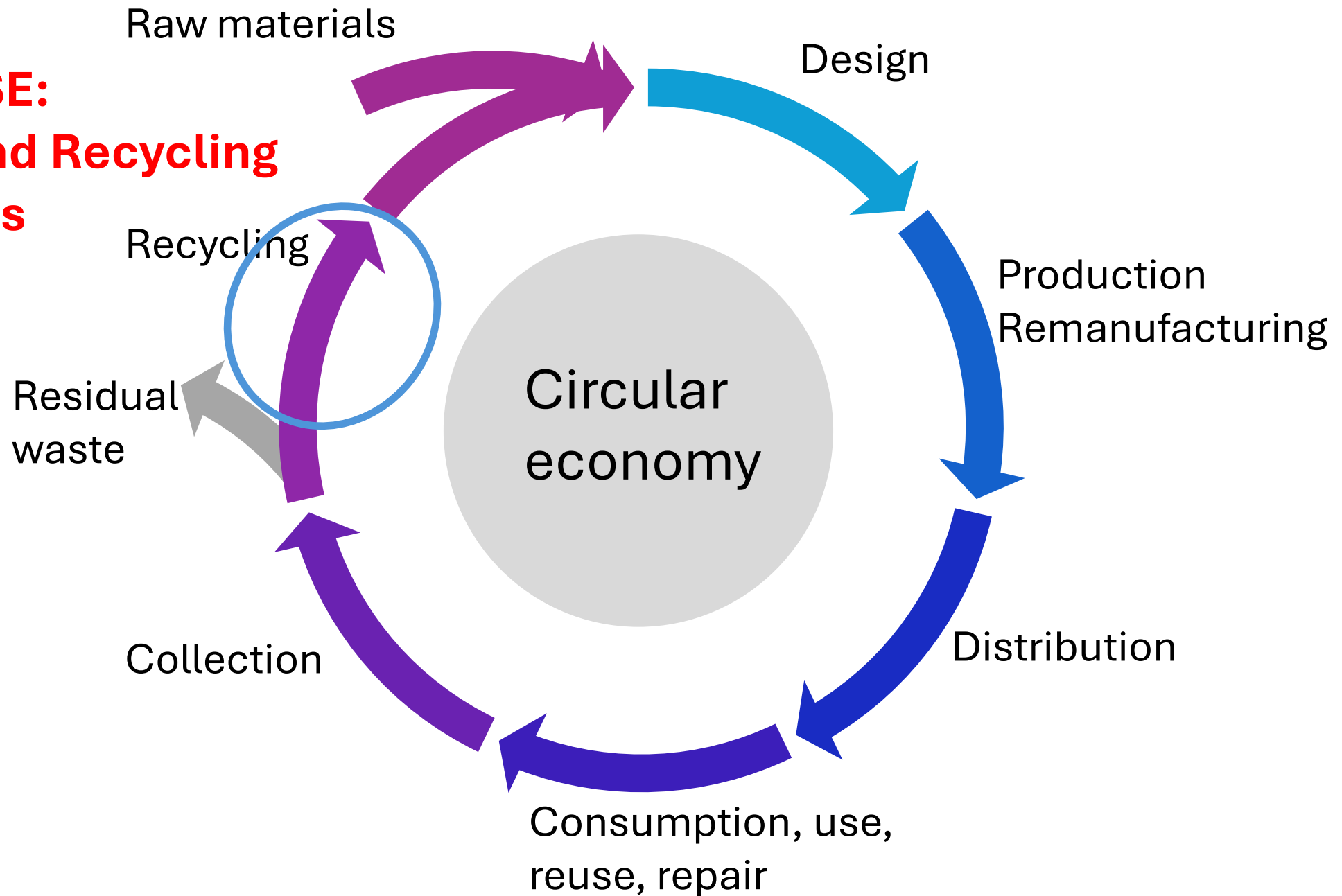
- 2 main sets of waste PSUTs:
 1. Non-hazardous waste
 2. Hazardous waste
- Rows: different types of waste – use national lists for categories of non-haz waste; use Annex 1 which is the foundational annex for the Basel convention (using Y categories) for hazardous waste
- Using HS codes for import and export of waste (connect HS to waste categories)
- Including ISIC 381 and 382 in detail to separate non-haz and haz:
 - 381 Waste collection activities (3811 non-haz, 3812 haz waste)
 - 382 Waste treatment and disposal (3821 non-haz, 3822 haz waste)

New policies...



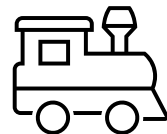


**PROPOSE:
Scrap and Recycling
Accounts**



Recycling Accounts modelled on Energy Accounts – 3 main stages

1. Extraction of raw material: crude petroleum
2. Transformation from raw material to useable energy products – heating oil, gasoline, diesel, jet kerosene, etc.
3. Sectors that use these different energy carriers – heating, transport, smelting, etc.



Recycling Accounts (ISIC 38.3 focus)

– modelled on energy accts “transformation”

- **Supply 1:** Inputs from
 - 381 waste collection – source separated fractions: glass, metal, paper
 - 382 treatment & disposal – separated before incineration
 - From industries that deliver material directly to recycling ISIC 38.3
- **Use 1: 383 Materials and other waste recovery => Transformation from waste to useable scrap and useable secondary raw materials (products)**
- **Supply 2:** 383 supplies secondary raw materials (products) to users
- **Use 2:** Users of secondary raw material (products), use as inputs to make other products.

CPC 89410 Metal waste and scrap recovery (recycling) services, on a fee or contract basis

This subclass includes:

- **processing services** of metal waste and scrap and of metal articles, whether or not used, **into secondary raw material**. Typical **input consists of waste and scrap being sorted or unsorted but always unfit for further direct use in an industrial process**, whereas the **output is made fit for further processing and is to be considered then as an intermediate good**.
- **A process is required, either mechanical or chemical. (Julie: should also include thermal)**

Examples are:

- * mechanical crushing of metal waste such as used cars, washing machines, bikes, etc., with subsequent sorting and separation
- * mechanical reduction of large iron pieces such as railway wagons
- * stripping of used goods such as cars in order to obtain reusable parts
- * stripping of used goods such as cars or refrigerators to strip them of harmful waste (oil, cooling liquid, fuel, etc.)

CPC 89420 Non-metal waste and scrap recovery (recycling) services, on a fee or contract basis

This subclass includes:

- **processing services** of non-metal waste and scrap and of non-metal articles, whether or not used, **into secondary raw material**. Typical **input consists of waste and scrap being sorted or unsorted but always unfit for further direct use in an industrial process**, whereas the **output is made fit for further processing and is to be considered then as an intermediate good**.
- **A process is required, either mechanical or chemical. (Julie: should also include thermal)**

Examples are:

- reclaiming of rubber such as used tires to produce secondary raw material
- sorting and pelleting of plastics to produce secondary raw material for tubes, flowerpots, pallets and the like
- reclaiming of chemicals from chemical waste
- crushing, cleaning and sorting of glass
- crushing, cleaning and sorting of other waste such as demolition waste to obtain secondary raw material

Transformation processes!

CPC 89410 and CPC 89420

- **processing services** of metal/non-metal waste and scrap and of metal/non-metal articles, whether or not used, **into secondary raw material.**
- Typical **input consists of waste and scrap being sorted or unsorted but always unfit for further direct use in an industrial process,** whereas,
- the **output is made fit for further processing and is to be considered then as an intermediate good.**
- **A process is required, either mechanical or chemical.**
(Julie: in my opinion this description should also include thermal)

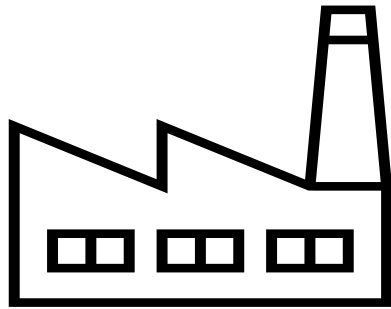


Waste tires and plastics

Pyrolysis oil

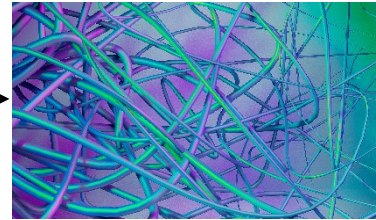


- FUEL used in:
- Boilers
- Brick Factory
- Glass Factory
- Steel Factory



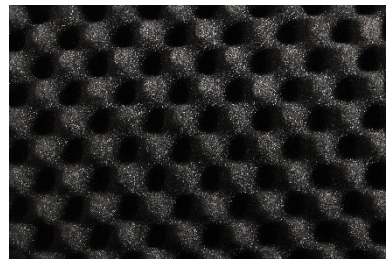
Pyrolysis process
(High temperature,
absence of oxygen)

Steel wire



- Scrap steel wire
- Smelting

Carbon black (powder)



- Roads
- Briquettes



Copper

- Copper plumbing pipes in a building
- Building demolition and/or removal of copper tubing from the building
- Scrap dealer purchases the scrap metal from the construction / demolition site
- Metal recycler will separate and cut off sections that are useable in one application and collect the parts that are useable in another application
- Copper pipes – cut to remove the lead solder at the joints.
- Clean copper to make new copper tubing
- Copper with other alloys used in other products (electronics)



Supply of waste	From environment	From the rest of the world	Accumulation of materials	Output by economic sector							Row Totals
				ISIC 38 Corporations							
		Imports	Disposals, reductions in inventories, deposits and scrap from capital, etc.	ISIC A- V Excluding ISIC 38	ISIC 381 Waste collection activities	ISIC 382 Waste treatment and disposal (landfill)	ISIC 382 Waste treatment and disposal (incineration)	ISIC 383 Materials and other waste recovery	HHs	Gen Gov	
Waste A - mixed municipal waste											145
Waste B - source separated glass			23		19					103	42
Waste c - scrap metal											37
Use of waste - Collection / direct delivery	Residuals to the environment	To the rest of the world	Capital formation and increases in inventories, deposits, etc.	Intermediate consumption by economic sector							Row Totals
				Corporations							
		Exports	Disposals, reductions in inventories, deposits and scrap from capital, etc.	ISIC A- V Excluding 38	ISIC 381 Waste collection activities	ISIC 382 Waste treatment and disposal (landfill)	ISIC 382 Waste treatment and disposal (incineration)	ISIC 383 Materials and other waste recovery	HHs	Gen Gov	
Waste A - mixed municipal waste											145
Waste B - source separated glass											42
Waste c - scrap metal											37

23

19

103

145

42

37

37

Corporations

145

42

37

122

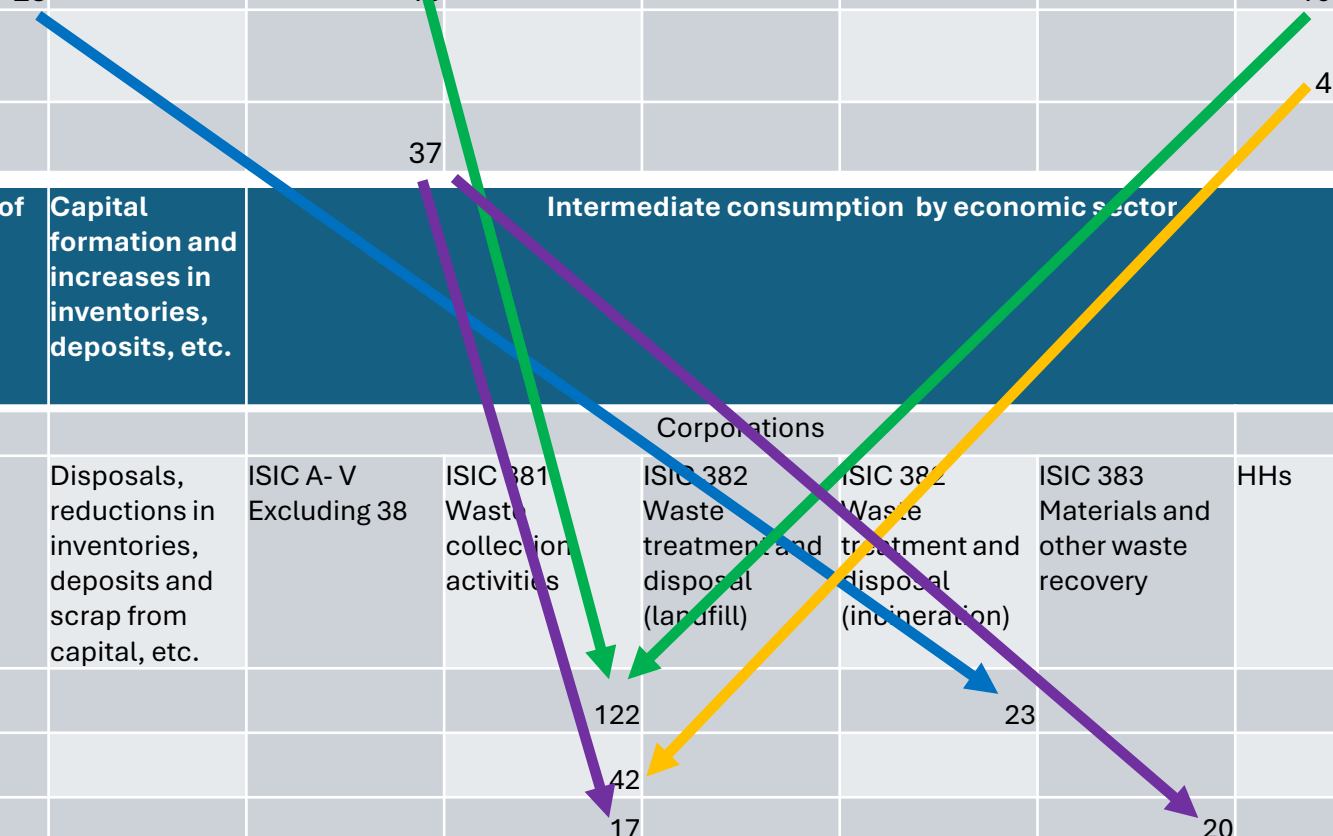
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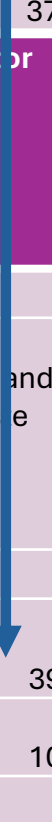
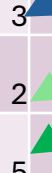
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20

14



Supply of materials and scrap that will be recycled / recovered	From environment	From the rest of the world	Accumulation of materials	Output by economic sector							Row Totals
				Corporations					HHs	Gen Gov	
		Imports	Disposals, reductions in inventories, deposits and scrap from capital, etc.	ISIC A- V Excluding 38	ISIC 381 Waste collection activities	ISIC 382 Waste treatment and disposal (landfill)	ISIC 382 Waste treatment and disposal (incineration)	ISIC 383 Materials and other waste recovery			
XXX											0
Waste B - source separated glass											42
Waste c - scrap metal (Ferrous & non-ferrous)											37
Transformation - of recycled/recovered materials and scrap	Residuals to the environment	To the rest of the world	Capital formation & increases in inventories, deposits, etc.	Intermediate consumption by economic sector							Row Totals
				Corporations					HHs	Gen Gov	
		Exports	Disposals, reductions in inventories, deposits and scrap from capital, etc.	ISIC A- V Excluding 38	ISIC 381 Waste collection activities	ISIC 382 Waste treatment and disposal (landfill)	ISIC 382 Waste treatment and disposal (incineration)	ISIC 383 Materials and other waste recovery			
XXX											0
CPC 37111 Glass in the mass, waste and scrap of glass		3									42
CPC 3936 Waste and scrap of other metals		2									12
CPC 3934 Ferrous waste and scrap		5								15	25



How to develop these accounts?

- Start with the production of scrap + collection of source separated waste that can be processed as scrap – as the supply to 383
- Then 383 transforms the scrap products to useable materials /secondary raw materials
- Which are supplied to various industries that use these materials as inputs in their production processes
- For example, ISIC 24 Manufacture of basic metals: “This division includes the activities of smelting and/or refining ferrous and non-ferrous metals from ore, pig, metal waste or scrap, using electrometallurgic and other process metallurgic techniques”

CPC products used by various ISIC industries

CPC 39 Wastes or scraps

- 391 Wastes from food and tobacco industry
- 392 Non-metal wastes or scraps
- 393 Metal wastes or scraps
- 399 Other wastes and scraps

Products from waste / scrap used in ISIC 2410, 2420, 2013

- 2410 **Manufacture of basic iron and steel** ...conversion by reduction... of **ferrous waste and scrap** in electric arc furnaces
- 2420 **Manufacture of basic precious and other non-ferrous metals** ... production and refining of unwrought or wrought precious metals: gold, silver, platinum etc. **from** ore **and scrap**.
- 2013 **Manufacture of plastics & synthetic rubber in primary forms**
 - “- manufacture of plastics powders, granules or flakes by compounding or reformulating plastics resins **from recovered plastic waste**
 - manufacture of **recycled plastic** by flaking and/or pelletising **pre-treated plastic waste following material recovery operations**

Conclusion: Need both for circular economy

Waste accounts + Scrap & Recycling accounts

- **Waste Accounts:**

- Non-hazardous waste
- Hazardous waste

- Scope: 381 Waste Collection + 382 Waste treatment & disposal

- **Recycling Accounts:**

- Scope: 383 Materials and other waste recovery activities
- Include other industries that produce materials that can be used

Need to figure out which products to include in rows of these accounts

 Can use the CPC – uses words ‘scrap’ but the product is the transformed / recycled products from ISIC 383

Thank you!

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Scrap and Recycling Accounts

- These accounts will focus on products and not waste in general
- The products typically have the word ‘scrap’ in their description in product lists such as CPC and HS
- These products do not always get collected by ISIC 383 but they can be collected by 383 – such as scrap metals and glass and other source separated fractions (construction/demolition)
- Examine what is included/excluded in ISIC rev 3 for 3830 Materials and other waste recovery
- Examine CPC

38.3 includes:

- processing of metal and non-metal waste and scrap and other articles into secondary raw materials, usually involving a mechanical or chemical transformation process
- recovery of materials from waste streams in the form of:
 - separating and sorting recoverable materials from non-hazardous waste streams (i.e. garbage)
 - separating and sorting of commingled recoverable materials, such as paper, plastics, used beverage cans and metals, into distinct categories

Examples of the mechanical or chemical transformation processes that are undertaken are:

- mechanical crushing of metal waste such as used cars, washing machines, bikes etc. with subsequent sorting and separation
- dismantling of automobiles, computers, televisions and other equipment for materials recovery
- mechanical reduction of large iron pieces such as railway wagons
- shredding of metal waste, end-of-life vehicles etc.
- other methods of mechanical treatment as cutting, pressing to reduce the volume
- ship-breaking
- reclaiming metals out of photographic waste, e.g. fixer solution or photographic films and paper
- reclaiming of rubber such as used tires to produce secondary raw material
- sorting and mechanical processing (e.g. cleaning, grinding) of plastics to produce secondary raw material
- processing (cleaning, melting, grinding) of plastic or rubber waste to granulates
- processing (aging, cleaning, sorting) of incineration bottom ash into secondary raw materials (metals, aggregates)
- crushing, cleaning and sorting of glass
- crushing, cleaning and sorting of other waste such as demolition waste to obtain secondary raw material
- recovery of waste oil, processing of used cooking oils and fats into secondary raw materials
- processing of other food, beverage and tobacco waste and residual substances into secondary raw materials

38.3 excludes:

- manufacture of new final products from secondary metal raw materials (whether or not self-produced), such as spinning yarn from garnetted stock, making pulp from paper waste, retreading tyres or production of metal from metal scrap, see corresponding classes in section C (Manufacturing)
- reprocessing of nuclear fuels, see 2011
- remelting ferrous waste and scrap, see 2410
- remelting of plastics to produce granulates or compounds, see 2013
- treatment and disposal of non-hazardous waste, see 3821
- treatment of organic waste for disposal, see 3821
- energy recovery from non-hazardous waste incineration processes, see 3821
- disposal of used goods such as refrigerators to eliminate harmful waste, see 3822
- treatment and disposal of transition radioactive waste from hospitals etc., see 3822
- treatment and disposal of toxic, contaminated waste, see 3822
- dismantling of automobiles, computers, televisions and other equipment to obtain and resell usable parts, see section G
- wholesale of recoverable materials, see 4669

CPC Ver. 3.0 Code	CPC Ver. 3.0 Title		
		39290	Other non-metal waste or scrap
		393	Metal wastes or scraps
32114	Pulps of fibres derived from recovered (waste and scrap) paper or paperboard or of other fibrous cellulosic material	3931	Slag, dross, scalings and other waste from the manufacture of iron or steel
32135	Testliner (recycled liner board)	39310	Slag, dross, scalings and other waste from the manufacture of iron or steel
37111	Glass in the mass, in balls (except microspheres), rods or tubes, unworked; waste and scrap of glass	3933	Waste and scrap of precious metal
39	Wastes or scraps	39331	Waste and scrap of gold or of metal clad with gold
391	Wastes from food and tobacco industry		Waste and scrap of precious metal (except gold) or of metal clad with precious metal (except gold)
392	Non-metal wastes or scraps	39332	Waste and scrap of precious metal (except gold) or of metal clad with precious metal (except gold)
3921	Miscellaneous textile wastes	39333	Ash containing precious metal or precious metal compounds
39211	Silk waste	3934	Ferrous waste and scrap
39212	Waste of wool or of fine or coarse animal hair	39340	Ferrous waste and scrap
39213	Garnetted stock of wool or of fine or coarse animal hair	3935	Remelting scrap ingots of iron or steel
39214	Cotton waste, except garnetted stock	39350	Remelting scrap ingots of iron or steel
39215	Other cotton waste; garnetted stock	3936	Waste and scrap of other metals
39216	Waste of man-made fibres	39361	Waste and scrap of copper
39217	Worn clothing and other worn textile articles	39362	Waste and scrap of nickel
		39363	Waste and scrap of aluminium
39218	Rags, scrap twine, cordage, rope and cables and worn out articles of twine, cordage, rope or cables, of textile materials	39364	Waste and scrap of lead
3922	Waste of leather, leather dust, powder and flour	39365	Waste and scrap of zinc
39220	Waste of leather, leather dust, powder and flour	39366	Waste and scrap of tin
3924	Waste and scrap of paper or paperboard		Waste and scrap of tungsten, molybdenum, tantalum, magnesium, cobalt, cadmium, titanium, zirconium, beryllium and thallium
		39367	Waste and scrap of tungsten, molybdenum, tantalum, magnesium, cobalt, cadmium, titanium, zirconium, beryllium and thallium
39241	Recovered (waste and scrap) paper or paperboard, of unbleached kraft paper or paperboard or corrugated paper or paperboard	39368	Waste and scrap of antimony and chromium
39242	Recovered (waste and scrap) paper or paperboard, of other paper or paperboard made mainly of bleached chemical pulp, not coloured in the mass	3937	Vessels and other floating structures for breaking up
39243	Recovered (waste and scrap) paper or paperboard, made mainly of mechanical pulp (newspapers, journals and similar)	39370	Vessels and other floating structures for breaking up
39249	Other recovered (waste and scrap) paper or paperboard, including unsorted waste and scrap		Waste and scrap of primary cells, primary batteries and electric accumulators; spent primary cells, primary batteries and electric accumulators
3925	Waste, parings and scrap of rubber (except hard rubber) and powders and granules obtained therefrom	3938	Waste and scrap of primary cells, primary batteries and electric accumulators; spent primary cells, primary batteries and electric accumulators
39250	Waste, parings and scrap of rubber (except hard rubber) and powders and granules obtained therefrom	39380	Waste and scrap of primary cells, primary batteries and electric accumulators
		416	Other non-ferrous metals and articles thereof (including waste and scrap of some metals); cermets and articles thereof
		4160	Other non-ferrous metals and articles thereof (including waste and scrap of some metals); cermets and articles thereof
			Bismuth, antimony, manganese, chromium and articles thereof; including