

# Item codes and groups

Hammerdirt

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## 1 Item Identification

Identification codes are used to answer fundamental questions:

- what is the item?
- how much do you find?
- how is the item used?
- where did the item come from?

Item identification follows the protocols from the MSFD Technical Subgroup on Marine Litter. The Master List was developed based on the categories of items used in a series of programs and is one of the most detailed, representing the most developed protocols in the EU. Analysis for this project was based on the list available in Annex 8.1 - Master List of Categories of Litter Items.[2] There are 217 identification codes from the EU Marine Strategy Framework Directive (MSFD) Master List used to classify all objects collected from a survey. The MSFD codes begin with (G1) and end with (G217).

The IQAOALSW project used the item codes and descriptions from the MSFD master list allowing for comparisons and trend analysis nationally and regionally with similar projects and studies.[4] To increase the identification, quantification and possible sourcing of items found in Swiss water systems the IQAOALSW project includes several important modifications to the original MSFD codes as well as an inclusion of 43 additional codes. The additional codes allow for data analyse at lower spatial scales, to capture regional data in Switzerland for example; *(G937) plastic pheromone baits* are commonly used in wine growing regions. The added codes begin with G900 and end with G999 and are linked to the MSFD master list using parent codes.

The MSFD code *(G124) other plastic/polystyrene items, identifiable* allows for quantification of unlisted **identifiable** plastic items. An item such as *(G913) pacifier* can be quantified independently and linked to the MSFD codes.

**Identifiable** plastic objects were either attributed to an added code such as (G937) or (G913), or if no other code describes the identified item as (G124) other plastic/polystyrene items identifiable.

Some additional codes were included to capture pandemic related items such as:

- *(G901) Mask medical, synthetic (Parent code (G124) other plastic/polystyrene items identifiable)*
- *(G902) Mask medical, cloth (Parent code (G145) other textiles)*

All but 2 of the additional codes used in this study are attached to a parent code in the MSFD Masterlist.

## No parent code

- (G999) No objects found on this survey
- (G998) No exposed shoreline

The (G999) and (G998) codes allow for a total item value of 0 to identify survey sites where no anthropogenic items were identified or the site was inaccessible:

## 2 Modified MSFD codes

Several important size and material modifications were made specifically to the fragmented plastic and foamed plastic categories. Other modifications include expansion or narrowing of item descriptions such as (G96) sanitary towels, panty liners **modified to include plastic tampon applicators**. The MSFD classifies the material as unidentified for (G211) Other medical items (swabs, bandaging, adhesive plaster etc.) For the IQAOLSW analysis the material is classified as an artificial polymer. Plastic adhesive bandages often made with elastic polyamides,[7] are commonly identified along Swiss river and lake shores.



### 2.1 Micro plastics

The objective of this project was to quantify observable litter which tends to be greater than 0.5 cm but the lower limit of natural visible detection when surveying a shore line is around 0.2 - 0.5 cm. Over the course of a survey, visible micro items are collected with the larger material and composition is generally identifiable. The IQAOLSW project did not include methods to specifically target items less than 5mm but all visible micro plastics collected during a survey were quantified, weighed and categorized using 20 codes (G103 - G123) available from MSFD Masterlist to classify plastics less than 5mm. See Annex B Micro plastic codes. To best identify and quantify micro plastics for this project 3 codes were modified from the MSFD Masterlist.

#### Code modification by size

- (G75) Plastic/polystyrene pieces 0 - 2.5 cm  
**modified to 0.5 cm - 2.5 cm**
- (G78) Plastic pieces 0 - 2.5 cm  
**modified to 0.5 cm - 2.5 cm**
- \*(G81) Polystyrene pieces 0 - 2.5 cm  
**modified to 0.5 cm - 2.5 cm**

\*(G81) also includes material modification to only expanded polystyrene a cheaper, more versatile and abundant form of polystyrene. Extruded polystyrenes often used specifically for insulation were classified by size using (G909) and (G910) codes. Foamed plastics are discussed further in the code grouping section 3.2 Foamed plastics.

## 2.2 Not applicable or omitted items

Of the 217 MSFD codes available 176 of the items were identified in the 2020-2021 surveys. Several items are not applicable to Swiss freshwater systems as they pertain to marine aquaculture production:

- (G207) octopus pots
- (G163) crab/lobster pots
- (G47) plastic sheeting from mussel culture
- (G215) food waste/galley waste\*

\*All naturally biodegradable food waste as well as feces collection and quantification was omitted from this project.

## 3 Code groups

Individual item codes have been grouped to best describe usage and possible sources. It is acknowledged that some items in a group contribute to a percentage rather than the whole sum. Code grouping is a broad analysis method to evaluate the discarded materials found in water systems by economic sectors or physical properties. Items are also analyzed independently in this report. The grouping is derived from field observations and research to determine possible sources of various pollutants.

All items have been grouped into one of the following categories:

1. wastewater: items released from water treatment plants includes items likely toilet flushed
2. micro plastics (< 5mm): foam/ plastic fragments and pre-production resins (nurdles)
3. infrastructure: items related to construction and maintenance of all buildings, roads and water/power supplies
4. food/drink: primarily single use plastic items related to consuming food and drinks outdoors
5. agriculture: primarily industrial sheeting; mulch films, row coverings, polytunnels, greenhouse sheeting, soil fumigation films, bale wraps as well as hard plastics; agricultural fencing, plastic flower pots etc.
6. tobacco: primarily cigarette filters includes all smoking related material
7. recreation: fishing, hunting, boating and beach related objects, excludes food, drink and tobacco
8. packaging non food/drink: packaging or wrapping material not identified as food, drink nor tobacco related
9. plastic pieces: plastic or foam/plastic composite pieces greater than 0.5 cm
10. personal items: personal use related; accessories, hygiene and clothing
11. unclassified: non grouped item codes

See Annexes A-K for all items attributed to each of the 11 code groups.

### 3.1 Fragmented plastics

Plastic fragments group (Gfrags for analysis) are all plastic or foam/plastic composite pieces greater than 0.5cm. Plastic pieces found along Swiss shorelines are predominately small, hard, highly fragmented pieces of a pigmented item. The original use and source is principally undetermined.

The individual plastic pieces were quantified by material and size:

- (G75) plastic/polystyrene pieces 0.5 - 2.5 cm
- (G76) plastic/polystyrene pieces 2.5 - 50cm
- (G78) plastic pieces 0.5 - 2.5 cm
- (G79) plastic pieces 2.5 -50 cm
- (G80) plastic pieces greater than 50 cm

Plastic pieces less than 5mm were grouped in micro plastic codes (G103 - G123).



### 3.2 Foamed plastics

**Expanded polystyrene (G81, G82, G83) are grouped as Gfoam for analysis to include all pieces greater than 0.5 cm.** The expanded foamed plastics are light, friable, commonly white and used for packaging or insulation. Foamed items commonly used for take out food (G10), sponge foams (G73) and denser insulation foams (G74) are categorized separately and not included in the expanded polystyrene group.

Polystyrene pieces were quantified by size

- (G81) 0.5 - 2.5 cm
- (G82) 2.5 -50 cm
- (G83) greater than 50 cm

(G117) styrofoam < 5mm. less than 5mm were identified as polystyrene beads, brand name Styrofoam® and grouped with micro plastics.

All expanded polystyrene greater than 0.5 cm are included in the **infrastructure code group** as well as **Insulation foams** which are extruded, denser, multi colored, often green, blue or pink foam board and spray foam pieces greater than 0.5 cm. Additional codes were added to quantify size variations of the insulation foams.

#### Code modification by material and size

G74 Foam packaging/insulation/polyurethane modified by size and includes extruded polystyrene:

- (G909) Foamed plastic insulation XPS, spray and foam board pieces 0.5- 2.5cm (Parent code G74)
- (G910) Foamed plastic insulation XPS, spray and foam board pieces 2.5-50cm (Parent code G74)
- (G121) Foamed user plastic >1mm

The code (G74) Foam packaging/insulation/polyurethane from the MSFD Masterlist was expanded in this study to include extruded polystyrenes (XPS) that are commonly used as insulation and conversely narrowed for G81, G82, and G83, polystyrene pieces, to only include expanded polystyrene larger than 0.5cm. These modifications were to differentiate construction insulation foams from packaging foams although both are used for a variety of applications. The material modifications to the foamed plastics is grouped to the parent codes for analysis and recorded separately using the additional codes created for this study.

#### Code modification by material and size

- (G81) Polystyrene pieces 0 - 2.5 cm modified to 0.5 - 2.5cm and excludes extruded polystyrene:
- (G82) Polystyrene pieces 2.5 cm > < 50cm modified to exclude extruded polystyrene:
- (G911) Foam expanded polystyrene pieces EPS 0.5 - 2.5cm (Parent code G81)
- (G912) Foam expanded polystyrene pieces EPS 2.5 - 50cm (Parent code G82)
- (G117 Styrofoam <5mm

Figure 1: Walenstadt, Walensee 20-08-2020 examples of various sizes of foamed plastics; XPS, EPS, and spray polyurethane foam SPF



### 3.3 Packaging non food/drink

All packaging or wrapping material including paper, plastic and metal not identified as food, drink nor tobacco related. The packaging non food/drink group includes an additional code (G941) plastic packaging film; nonfood, drink, nor tobacco related. Commonly the films are highly deteriorated and fragmented making the original use and source difficult to determine. Thin film packaging for food (G30), plastic tobacco packaging (G25), plastic bags (G3) and other identifiable thin plastic films are categorized separately.

## 4 Agriculture and infrastructure

Both sectors are broadly based groupings and contain versatile items commonly utilized in agriculture production and construction projects. To determine the exact origin of material found along Swiss shorelines is not feasible although proximity of rivers to survey locations are a likely transport method for many items especially highly buoyant, light weight material. See land use attribute analysis.

*Agriculture for grouping analysis is the production for commercial purposes of crops, livestock, livestock products, nursery and greenhouse products and forest crops.*

*Infrastructure relates to all forms of construction, renovations and maintenance of public and private structures including roads, bridges and ports as well as power and water supplies.*

Examples of common use items attributed to agriculture group:

- (G41) Gloves industrial/professional
- (G191) Wire, wire mesh, barbed wire

Examples of common use items attributed to infrastructure group:

- (G186) Industrial scrap
- (G194) Metal cables

Most common use items attributed to the agriculture and infrastructure groups are found in low quantities relative to other item totals with a few exceptions such as foamed plastics, industrial sheeting and plastic construction waste. (G89) Plastic construction waste includes all plastic material related to construction, maintenance or renovation projects.

Along Swiss shorelines the most common construction plastics are fragments and pieces of all sizes and types of ABS, PVC piping and other flexible and rigid hosing, cable protectors as well as associated connectors, fittings and covers. Also common are plastics used in concrete forming such as dowels, anchors and spacers. Some items associated with plastic construction have unique codes such as; (G93) cable ties (G17) injection gun containers.

Foamed plastics and industrial sheeting have a multitude of uses in many sectors, large quantities are used in a diverse array of applications in agriculture and construction. Both sectors are highly exposed to the natural elements and are particularly susceptible to material loss during high wind and flooding rain events especially sites near water bodies. The low cost, lightweight and disposable nature combined with the copious use of these materials all contribute to the likely hood these objects are escaping current pollution control practices into nearby water systems. Regulations and procedures for securing sights from material loss may vary across sectors adding to the difficulty of sourcing these pollutants.

In the group and use analysis of this report, industrial sheeting is attributed to the agriculture group and all foamed plastics associated with insulation applications are attributed to the infrastructure group.

## 4.1 Agriculture

Industrial sheeting (G67) is a broad category that includes plastic sheets and films that are flat pieces of plastic formed to a precise thickness for use in specific applications. Products differ in terms of materials, properties, and dimensions[6].

In this report and analysis the thicker, more weather resistant forms of sheeting and films are categorized as industrial sheeting. The thinner single use plastic packaging films are categorized separately as are heavier boat, transport covers, (G38).

Industrial sheeting is attributed to the agriculture group due to their external environmental exposure and use in close proximity to water systems such as rivers, streams and canals. Industrial sheeting is also attributed to agriculture due to the continuously increasing use of plastic materials in agricultural applications commonly referred to as plasticulture. The plastic materials themselves are often and broadly referred to as "ag plastics."

Plasticulture includes irrigation tubing, plastic nursery pots, and a multitude of sheets and films used in horticultural, grain crop and dairy sectors. Sheetings and films are primarily low-density polyethylene (LDPE) but can also be polypropylene (PP).[3]

*Plasticulture definition: All plastic non-packaging products used in fruit, vegetable, grain or animal production.[3]*



Plasticulture sheeting and films (G67):

- mulch film
- row coverings
- polytunnels
- plastic greenhouses
- soil fumigation films
- silage bale wrap

Additional plasticulture items:

- (G90) nursery pots
- (G936) greenhouse films and bale wrap (Parent code G67)
- (G937) plastic pheromone baits (Parent code G124)

Several codes were added to identify common items found along Swiss water bodies that pertain to agriculture such as (G937) plastic pheromone baits commonly used in vineyards and (G943) plastic fencing associated with seasonal animal pasturing. The specific sheeting code (G936) greenhouse films and silage wrap was added for a particular type of product where the agriculture use is identifiable. Isolating agricultural plastic sheeting use is difficult as industrial manufacturers of plastic used in agriculture also manufacture other products for the packaging or construction sector. Predominately along Swiss shorelines plastic sheeting and films are extremely weathered and fragmented making definitive use and origin difficult to determine.

About 4 percent of the plastic produced in Europe and the United States, is used each year in the agricultural sector. Nearly all plastics in agriculture must be disposed of after a single growing season largely related to chemical contamination.[3] According to an agricultural plastic supplier for Europe; Switzerland had 3,650 T of agricultural sheeting and films sales in 2018 and the total EU plus 3, used 533,310 tons[5]. The industrial plastic sheeting removed and quantified along Swiss waters is a concern as it continues to deteriorate into micro plastic pollutants. Regulation on use of plastics and plastic waste produced are beginning in some places such as; the European Union under the Circular Economy Action Plan.

## 4.2 Tobacco

The largest quantities of tobacco products are cigarette filters (G27). Additional codes describe other tobacco related items such as; (G26) plastic cigarette lighters, (G25) and (G152) to itemize plastic and paper tobacco packaging.

## 4.3 Food and drink

Includes all materials related to eating and drinking. The greatest quantities are single use plastics (SUP) items related to outdoor or to go consumption. The most prevalent SUP are packaging for candy and snacks items (G30).

Additional SUP items:

- (G21) plastic caps/lids drinks
- (G31) lolly sticks
- (G34) plastic cutlery and trays
- (G35) straws and stirrers

Other common non-plastic food and drink related materials

- (G175) cans (beverage)
- (G177) foil wrappers, aluminium foil
- (G178) metal bottle caps, pull tabs
- (G200) glass bottles and pieces
- (G153) paper cups, food trays, food wrappers, drink containers

## 4.4 Recreation

The recreational group includes fishing, hunting, boating and beach related objects, excludes food, drink and tobacco. Plastic shotgun cartridges (G70) are found in surprising numbers considering hunting is not allowed along public beaches and maybe a key indicator of travel distances through the water systems.

Additional MSFD and IQAOALSW codes related to recreation

- (G32) plastic toys and party poppers
- (G904) plastic fireworks (Parent code G124)
- (G935) Walking stick pads and pieces, often synthetic rubber material (Parent code G124)

#### 4.5 Wastewater

Grouped as items likely released by wastewater treatment plants. Primarily plastic material used in sewage treatment such as (G91) biomass holders or SUP items originally toilet flushed including (G95) plastic cotton bud sticks[1].

Additional items likely related to wastewater transport

- (G97) toilet fresheners
- (G96) sanitary towels, panty liners modified to include tampon applicators
- (G100) medical, pharmaceutical containers and tubes

Note (G98) diapers modified to include wipes. Personal sanitation wipes and industrial use wipes are identified frequently and in large quantities along Swiss shorelines specifically tangled in river vegetation and mixed in lake shore strand line deposits. Wipes and synthetic rags are often associated with sewage discharge and often identified with other toilet flushed items such as cotton swab sticks and wastewater use items such as media filters. Diapers are not associated with sewage treatment and have been observed in extremely low quantities along Swiss shorelines. Approximately 95 percent of total quantities for (G98) are personal and industrial wipes.

#### 4.6 Personal items

Includes accessories, hygiene and clothing related items lost or discarded likely on or near the survey site. Includes pandemic related items such as face masks (G900, G901) as well as beach related items such as sunglasses and clothing.

Additional MSFD and IQAOALSW codes related to personal items:

- (G923) tissue, toilet paper, napkins, paper towels Parent code (G158) Other paper items
- (G96) sanitary towels, pantyliners modified to include tampon applicators
- (G100) medical, pharmaceutical containers and tubes

#### 4.7 Unclassified items

The non grouped codes are predominately items that are ambiguous in origin, rarely identified, or do not pertain to shoreline surveillance of Swiss water systems. Many of the non grouped items have a total value of 0 for all survey data included in this report. Notable exceptions are (G20) and (G23) plastic caps/lids unidentified which are found in significant quantities but use and origin are unknown.

Glass or ceramic fragments >2.5cm (G208) is also unclassified in this report. Predominately ceramic pieces of unknown use or origin are identified frequently and in relatively high concentrations. The occurrence of ceramic fragments may be related to the sources of material for beach replenishing practices as well as natural transport and deposition processes rather than food and drink or other beach related activities. Identifiable glass drink bottles and pieces are classified as (G200) bottles and includes pieces, they are grouped with food and drink.

All of the (MSFD) Master List and IQAOALSW codes added are contained in ONE of the defined code groups. For the complete grouped item code lists see Annex: Item code group lists.

## Code grouping appendix

### A Micro plastic codes

micro plastics < 5mm

code	description	material
G103	Plastic fragments rounded <5mm	Plastic
G104	Plastic fragments subrounded <5mm	Plastic
G105	Plastic fragments subangular <5mm	Plastic
G106	Plastic fragments angular <5mm	Plastic
G107	Cylindrical pellets < 5mm	Plastic
G108	disk pellets <5mm	Plastic
G109	Flat pellets <5mm	Plastic
G110	Ovoid pellets < 5mm	Plastic
G111	Spheruloid pellets < 5mm	Plastic
G112	Industrial pellets (nurdles)	Plastic
G113	Filaments <5mm	Plastic
G114	Films <5mm	Plastic
G115	Foamed plastic <5mm	Plastic
G116	Granules <5mm	Plastic
G117	Styrofoam < 5mm	Plastic
G118	Small industrial spheres <5mm	Plastic
G119	Sheetlike user plastic (>1mm)	Plastic
G120	Threadlike user plastic (>1mm)	Plastic
G121	Foamed user plastic (>1mm)	Plastic
G122	Plastic fragments (>1mm)	Plastic
G123	Polyurethane granules < 5mm	Plastic

## B Fragmented plastic codes

Fragmented plastics

code	description	material
G75	Plastic/polystyrene pcs 0 - 2.5 cm	Plastic
G76	Plastic/foamed polystyrene 2.5 > < 50	Plastic
G77	Plastic or polystyrene > 50cm	Plastic
G78	Plastic pieces 0.5cm - 2.5cm	Plastic
G79	Plastic pieces 2.5cm - 50cm	Plastic
G80	Plastic pieces > 50cm	Plastic

## C Wastewater treatment codes

wastewater treatment

code	description	material
G144	Tampons	Cloth
G100	Medical; containers/tubes/ packaging	Plastic
G91	Biomass holder	Plastic
G932	Bio-beads, micro plastic for wastewater treatment, irregular shape, ridged sides < 5mm	Plastic
G95	Cotton bud/swab sticks	Plastic
G96	Sanitary-pads/panty liners/tampons	Plastic
G97	Toilet fresheners	Plastic
G98	Diapers - wipes	Plastic
G133	Condoms incl. packaging	Rubber

## D Recreation codes

Recreation

code	description	material
G213	Paraffin wax	Chemicals
G142	Rope , string or nets	Cloth
G143	Sails and canvas	Cloth
G206	Glass buoys	Glass
G182	Fishing; hooks, weights, lures, sinkers etc.	Metal
G183	Fish hook remains	Metal
G155	Fireworks paper tubes and fragments	Paper
G11	Cosmetics for the beach, e.g. sunblock	Plastic
G32	Toys and party favors	Plastic
G43	Tags fishing or industry (security tags, seals)	Plastic
G48	Rope, synthetic	Plastic
G49	Rope > 1cm	Plastic
G50	String <1cm	Plastic
G51	Fishing net	Plastic
G52	Nets and pieces	Plastic
G53	Nets and pieces < 50cm	Plastic
G54	Nets and pieces > 50cm	Plastic
G55	Fishing line (entangled)	Plastic
G56	Tangled nets	Plastic
G57	Fish boxes	Plastic
G58	Foam fish box	Plastic
G59	Fishing line monofilament (angling)	Plastic
G60	Light sticks	Plastic
G61	Other fishing related	Plastic
G63	Buoys	Plastic
G70	Shotgun cartridges	Plastic
G73	Foamed items & pieces (non packaging/insulation) foamed sponge material	Plastic
G86	Fin trees	Plastic
G904	Fireworks; rocket caps, exploded parts & packaging	Plastic
G92	Bait containers	Plastic
G94	Table cloth	Plastic
G940	Foamed EVA for crafts and sports	Plastic
G125	Balloons and balloon sticks	Rubber
G126	Balls	Rubber
G132	Bobbers (fishing)	Rubber
G164	Fish boxes	Wood
G167	Matches or fireworks	Wood

## E Packaging non food, drink nor tobacco codes

Packaging related items not identified as food, drink nor tobacco

code	description	material
G146	Paper, cardboard	Paper
G147	Paper bags	Paper
G148	Cardboard (boxes and fragments)	Paper
G149	Paper packaging	Paper
G156	Paper fragments	Paper
G157	Paper	Paper
G158	Other paper items	Paper
G2	Bags	Plastic
G20	Caps and lids	Plastic
G23	Lids unidentified	Plastic
G3	Bags; plastic shopping/carrier/grocery and pieces	Plastic
G4	Small plastic bags; freezer, zip-lock etc.	Plastic
G5	Generic plastic bags	Plastic
G6	Bottles and containers, plastic non food/drink	Plastic
G922	Labels, bar codes	Plastic
G925	Packets: desiccant/ moisture absorbers, plastic case filled with silica	Plastic
G941	Packaging films nonfood or unknown	Plastic

## F Tobacco codes

Tobacco

code	description	material
G152	Cigarette boxes, tobacco related paper/cardboard	Paper
G25	Tobacco; plastic packaging, containers	Plastic
G26	Cigarette lighters	Plastic
G27	Cigarette filters	Plastic

## G Food and drink codes

Food and Drink

code	description	material
G200	Glass drink bottles, pieces	Glass
G201	Jars, glass or pottery, includes pieces	Glass
G203	Tableware ceramic or glass, cups, plates, pieces	Glass
G175	Cans, beverage	Metal
G176	Cans, food	Metal
G177	Foil wrappers, aluminum foil	Metal
G178	Metal bottle caps, lids & pull tabs from cans	Metal
G179	Disposable BBQs	Metal
G181	Tableware metal; cups, cutlery etc.	Metal
G906	coffee capsules aluminum	Metal
G150	Milk cartons, tetrapack	Paper
G151	Cartons, Tetrapacks	Paper
G153	Cups, food containers, wrappers (paper)	Paper
G1	Six pack rings	Plastic
G10	Food containers single use foamed or plastic	Plastic
G21	Drink lids	Plastic
G24	Lid/cap rings from plastic bottles/containers	Plastic
G30	Food wrappers; candy, snacks	Plastic
G31	Lollipop sticks	Plastic
G33	Cups, lids, single use foamed and hard plastic	Plastic
G34	Cutlery, plates and trays	Plastic
G35	Straws and stirrers	Plastic
G7	Drink bottles < = 0.5L	Plastic
G8	Drink bottles > 0.5L	Plastic
G907	coffee capsules plastic	Plastic
G926	Chewing gum, often contains plastics	Plastic
G938	Toothpicks, dental floss plastic	Plastic
G159	Corks	Wood
G165	Ice cream sticks, toothpicks, chopsticks	Wood



Figure 2: Tessin 2021

## H Agriculture codes

### Agriculture

code	description	material
G140	Bags, burlap, hessian, jute or hemp	Cloth
G191	Wire and mesh	Metal
G192	Barrels	Metal
G13	Bottles, containers, drums to transport, store material	Plastic
G18	Crates/baskets	Plastic
G36	Bags/sacks heavy duty plastic for 25 Kg or more; animal feed, fertilizers, garden trash etc.	Plastic
G41	Glove industrial/professional	Plastic
G65	Buckets	Plastic
G67	Industrial sheeting	Plastic
G90	Plastic flower pots	Plastic
G934	Sandbag, plastic for flood, erosion control etc..	Plastic
G936	Sheeting ag. greenhouse film	Plastic
G937	Pheromone baits for vineyards	Plastic
G943	Fencing agriculture, plastic	Plastic
G161	Processed timber	Wood
G168	Wood boards	Wood
G170	Wood (processed)	Wood
G171	Other wood < 50cm	Wood
G172	Other wood > 50cm	Wood

# I Infrastructure codes

Infrastructure

code	description	material
G214	Oil/tar	Chemicals
G204	Construction material; bricks, pipes, cement	Glass
G921	Ceramic tile and pieces	Glass
G174	Aerosol spray cans	Metal
G186	Industrial scrap	Metal
G187	Drums	Metal
G188	Other cans < 4 L	Metal
G189	Gas bottles, drums and buckets > 4 L	Metal
G190	Paint cans	Metal
G194	Cables, metal wire(s) often inside rubber or plastic tubes	Metal
G197	Other metal	Metal
G198	Other metal pieces < 50cm	Metal
G199	Other metal pieces > 50cm	Metal
G919	Nails, screws, bolts etc.	Metal
G17	Injection gun cartridge	Plastic
G22	Lids for chemicals, detergents (non-food)	Plastic
G65	Buckets	Plastic
G66	Straps/bands; hard, plastic package fastener	Plastic
G68	Fiberglass fragments	Plastic
G69	Helmets or hardhats	Plastic
G72	Traffic cones	Plastic
G74	Insulation: includes spray foams and foam board	Plastic
G81	Foamed polystyrene pieces 0.5cm - 2.5cm	Plastic
G82	Foam polystyrene; expanded beads/balls 2.5cm - 50cm	Plastic
G83	Polystyrene pieces > 50cm	Plastic
G87	Tape, masking/duct/packing	Plastic
G89	Plastic construction waste	Plastic
G9	Cleaner, chemical bottles & containers	Plastic
G908	Tape; electrical, insulating	Plastic
G909	Foamed-plastic for insulation; yellow, pink, blue/green & spray foams 0.5cm - 2.5cm	Plastic
G910	Foamed-plastic for insulation; yellow, pink, blue/green & spray foams 2.5cm - 50cm	Plastic
G911	Foamed polystyrene pieces 0.5cm - 2.5 cm	Plastic
G912	Foam polystyrene; expanded beads/balls 2.5cm - 50cm	Plastic
G927	String trimmer line, used to cut grass, weeds, and shrubbery	Plastic
G93	Cable ties; steggel, zip, zap straps	Plastic
G931	Tape-caution for barrier, police, construction etc.	Plastic
G160	Pallets	Wood
G162	Crates	Wood
G166	Paint brushes	Wood
G169	Beams, dunnage	Wood

## J Personal item codes

Personal items

code	description	material
G135	Clothes, footware, headware, gloves	Cloth
G136	Shoes	Cloth
G137	Clothing, towels & rags	Cloth
G138	Shoes and sandals	Cloth
G139	Backpacks	Cloth
G145	Other textiles	Cloth
G902	Mask medical, cloth reusable	Cloth
G195	Batteries - household	Metal
G918	Safety pins, paper clips, small metal utility items	Metal
G929	Electronics and pieces; sensors, headsets etc.	Metal
G945	Razor blades	Metal
G154	Newspapers or magazines	Paper
G923	Tissue, toilet paper, napkins, paper towels	Paper
G101	Dog feces bag	Plastic
G102	Flip-flops	Plastic
G12	Cosmetics, non-beach use personal care containers	Plastic
G211	Other medical (swabs, bandaging, adhesive plaster)	Plastic
G28	Pens, lids, mechanical pencils etc.	Plastic
G29	Combs, brushes and sunglasses	Plastic
G37	Mesh bags	Plastic
G39	Gloves	Plastic
G40	Gloves household/gardening	Plastic
G71	Shoes sandals	Plastic
G84	CD or CD box	Plastic
G88	Telephone incl. parts	Plastic
G901	Mask medical, synthetic	Plastic
G903	Hand sanitizer containers & packets	Plastic
G905	Hair clip, hair ties, personal accessories plastic	Plastic
G913	Pacifier	Plastic
G914	Paperclips, clothespins, plastic utility items	Plastic
G915	Reflectors, plastic motility items	Plastic
G928	Ribbons and bows	Plastic
G930	Foam earplugs	Plastic
G933	Bags, cases for accessories; glasses, electronics, incl. straps, pieces, plstc. nylon etc.	Plastic
G935	Walking stick pads and pieces, often elastomeric material	Plastic
G939	Flowers, plants plastic	Plastic
G99	Syringes - needles	Plastic
G127	Rubber boots	Rubber
G131	Rubber bands	Rubber
G900	Gloves latex personal protective equipment	Rubber
G916	Pencils and pieces	Wood

## K Unclassified item codes

Table 32: not grouped

code	description	material
G212	Oil nodules or coal fragments -- not from a BBQ	Chemicals
G141	Carpet	Cloth
G202	Light bulbs	Glass
G205	Fluorescent light tubes	Glass
G207	Octopus pots	Glass
G208	Glass or ceramic fragments > 2.5 cm	Glass
G209	Large glass objects	Glass
G210	Other glass/ceramic	Glass
G917	Terracotta balls	Glass
G180	Appliances	Metal
G184	Lobster pots	Metal
G185	Middle size containers	Metal
G193	car parts and batteries	Metal
G196	Large metallic objects	Metal
G124	Other plastic or foam products	Plastic
G14	Engine oil bottles	Plastic
G15	Engine oil bottles > 50cm	Plastic
G16	Jerry cans	Plastic
G19	Car parts	Plastic
G38	Coverings; plastic packaging, sheeting for protecting large cargo items	Plastic
G42	Crab lobster pots	Plastic
G44	Octopus pots	Plastic
G45	Mussel nets	Plastic
G46	Oyster trays	Plastic
G47	Sheeting from mussel culture	Plastic
G64	Fenders	Plastic
G700	The results from a clean up event	Plastic
G85	Salt packaging	Plastic
G942	Plastic shavings from lathes, CNC machining	Plastic
G944	Pellet mass from injection molding	Plastic
G128	Tires and belts	Rubber
G129	Inner tubes and rubber sheets	Rubber
G130	Wheels	Rubber
G134	Other rubber	Rubber
G998	No exposed shoreline	Undefined
G999	No objects found on this survey	Unidentified
G173	Other	Wood
Gfrags	Fragmented plastics	Plastic
Gfoam	Expanded polystyrene	Plastic

## L Codes added to identify common items identified along Swiss water bodies

additional codes

code	description	material
G902	Mask medical, cloth reusable	Cloth
G917	Terracotta balls	Glass
G921	Ceramic tile and pieces	Glass
G906	coffee capsules aluminum	Metal
G918	Safety pins, paper clips, small metal utility items	Metal
G919	Nails, screws, bolts etc.	Metal
G929	Electronics and pieces; sensors, headsets etc.	Metal
G945	Razor blades	Metal
G923	Tissue, toilet paper, napkins, paper towels	Paper
G901	Mask medical, synthetic	Plastic
G903	Hand sanitizer containers & packets	Plastic
G904	Fireworks; rocket caps, exploded parts & packaging	Plastic
G905	Hair clip, hair ties, personal accessories plastic	Plastic
G907	coffee capsules plastic	Plastic
G908	Tape; electrical, insulating	Plastic
G909	Foamed-plastic for insulation; yellow, pink, blue/green & spray foams 0.5cm - 2.5cm	Plastic
G910	Foamed-plastic for insulation; yellow, pink, blue/green & spray foams 2.5cm - 50cm	Plastic
G911	Foamed polystyrene pieces 0.5cm - 2.5 cm	Plastic
G912	Foam polystyrene; expanded beads/balls 2.5cm - 50cm	Plastic
G913	Pacifier	Plastic
G914	Paperclips, clothespins, plastic utility items	Plastic
G915	Reflectors, plastic motility items	Plastic
G922	Labels, bar codes	Plastic
G925	Packets: desiccant/ moisture absorbers, plastic case filled with silica	Plastic
G926	Chewing gum, often contains plastics	Plastic
G927	String trimmer line, used to cut grass, weeds, and shrubbery	Plastic
G928	Ribbons and bows	Plastic
G930	Foam earplugs	Plastic
G931	Tape-caution for barrier, police, construction etc.	Plastic
G932	Bio-beads, micro plastic for wastewater treatment, irregular shape, ridged sides < 5mm	Plastic
G933	Bags, cases for accessories; glasses, electronics, incl. straps, pieces, plstc. nylon etc.	Plastic
G934	Sandbag, plastic for flood, erosion control etc..	Plastic
G935	Walking stick pads and pieces, often elastomeric material	Plastic
G936	Sheeting ag. greenhouse film	Plastic
G937	Pheromone baits for vineyards	Plastic
G938	Toothpicks, dental floss plastic	Plastic
G939	Flowers, plants plastic	Plastic
G940	Foamed EVA for crafts and sports	Plastic
G941	Packaging films nonfood or unknown	Plastic
G942	Plastic shavings from lathes, CNC machining	Plastic
G943	Fencing agriculture, plastic	Plastic
G944	Pellet mass from injection molding	Plastic
G900	Gloves latex personal protective equipment	Rubber
G916	Pencils and pieces	Wood

## References

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