

CROSS BORDER





# REPORT ON Marine litter monitoring in the Black Sea area affected by the rivers: Turkey pilot case study

GA-T2 - Field work: conducting pilot monitoring studies in selected study areas

Activity T2.1 - Study of River - Black Sea systems interactions



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Common borders. Common solutions.

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### 1 Introduction

Marine litter, which is one of the most important pollution problems of today, causes negative effects on environment, economic, security, health and cultural. Marine litter defined as "any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment" by United Nations Environment Programme (UNEP, 2005; 2009).

The European Union aims to protect the marine environment more efficaciously in Europe with Maritime Strategy Framework Directive (MSFD). Each Member State should achieve or maintain good environmental status (GES). GES is based on 11 qualitative descriptors as listed in Annex I and marine litter has been defined as "*Properties and quantities of marine litter do not cause harm to the coastal and marine environment*" in Descriptor 10. Marine litter monitoring studies are an important issue to reach sufficient information about the current situation. The marine litter pollution was investigated beaches, seafloor and sea surface by various researches in the Black Sea (Topcu and Ozturk, 2010; Topcu et al., 2013; Suaria et al., 2015; Moncheva et al., 2016; Terzi and Seyhan 2017; Öztekin and Bat, 2017; Simenova et al., 2017; Terzi et al., 2020; Aytan et al., 2020; Öztekin et al., 2020). In studies conducted in the Black Sea coasts show that litter densities seem to quite high and marine litter had pressure on coastal area.

The Black Sea is exposed to a substantial anthropogenic impact due to big drainage basin and the large rivers runoff of the Black Sea (Danube, Dnieper, Bug, Dniester, Don, Kuban, Rioni etc.) transport noticeable amount of pollutants to marine environment (BSC, 2007). It is important to reveal the transportation of land-based litter items through rivers and the pressure of river-borne litter in the marine environment. For this reason, references beaches are located near the Sakarya River and the Yesilirmak River which are Turkey's most important rivers flowing into the Black Sea. The abundance and composition of marine litter were determined in the Turkish Black Sea coast by TUBITAK-MAM. In the study, the proposed methods under the Beach Litter section in the Guidance on Monitoring of Marine Litter in the European Seas (2013) published by the European Marine Strategy Framework Directive Marine Litter Technical Subgroup were used.

This report includes the field works conducted for the assessment of impacts on the Black Sea water quality (for the activities T2.1) within the scope of the ANEMONE (Assessing the vulnerability of the Black Sea marine ecosystem to human pressures) project. Sampling studies were carried out by the group of researchers and technicians (6 person) from TUBITAK MRC and Sinop University. Marine litter collection study were carried out from coastal area (beaches) near Sakarya River and Yeşilırmak Rivers on 10 and 12 September 2019 respectively.

## 2 Methods

#### 2.1 Study site

The survey was conducted in the selected two references beaches (TR001 and TR002) in the Black Sea coast of Turkey (Figure 1). TR001 is located in the Karasu-Sakarya River mouth and TR002 is located in the Çarşamba-Yeşilırmak River mouth.



Figure 1 - Figure 1.1. Survey sites in Turkish Black Sea coast

TR001: The beach is located of the southwestern Black Sea (Figure 2a). The beach coordinates 41.126162 N and 30.647011 E. Beach location is 355° N and typical sandy beach. Beach is located in the Karasu district of Sakarya and the beach is situated 0.2 km west of Sakarya River and 6 km west Karasu city center. Town population was 64790 in 2019 and tourism is peak in summer months in the town. There are few buildings close to the beach. Survey site survey start latitude and longitude is given in Table 1.

TR002: The beach is located of the southeastern Black Sea (Figure 2b). The beach coordinates 41.380291 N and 36.654731 E. Beach location is 340°N and typical sandy beach. The beach is located in the Çarşamba district of Samsun province and beach is situated 0.4 km west of the Yeşilırmak River and 23 km north Çarşamba city center. Town population was 138544 in 2019.

Coordinates of marine litter survey areas on the beaches are given in Table 1.

| SAKARYA - vegetated beach (~1400m <sup>2</sup> ) |                           |              |  |  |
|--|---------------------------|--------------|--|--|
|  | North                     | East         |  |  |
| 1  | 41° 07.577'               | 30 ° 38.738' |  |  |
| 2  | 41° 07.582'               | 30 ° 38.740' |  |  |
| 3  | 41° 07.582'               | 30 ° 38.478' |  |  |
| 4  | 41° 07.573'               | 30° 38.747'  |  |  |
| 5  | 41 ° 07.571'              | 30 ° 38.775' |  |  |
| 6  | 41 ° 07.579'              | 30° 38.776'  |  |  |
| 7  | 41 ° 07.573'              | 30°38.811'   |  |  |
| 8  | 41 ° 07.577'              | 30°38.810'   |  |  |
| YEŞİLIRMAK -                                     | vegetated beach (~2186m²) |              |  |  |
|  | North                     | East         |  |  |
| 1  | 41 ° 22.819'              | 36° 39.307'  |  |  |
| 2  | 41 ° 22.808'              | 36°39.311'   |  |  |
| 3  | 41 ° 22.810'              | 36° 39.317'  |  |  |
| 4  | 41 ° 22.821'              | 36°39.313'   |  |  |
| 5  | 41 ° 22.827'              | 36°39.339'   |  |  |
| 6  | 41 ° 22.816'              | 36°39.345'   |  |  |
| 7  | 41 ° 22.823'              | 36°39.376'   |  |  |
| 8  | 41 ° 22.832'              | 36°39.376'   |  |  |

Table 1 - Survey sites survey start latitudes and longitudes



a

b

Figure 2 - Survey sites: a-Sakarya, b-Yesilırmak (September, 2019-Turkey)

#### 2.2 Sampling and Categorization

The survey methodology was in compliance to JRC Scientific and Policy Reports, Guidance on Monitoring of Marine Litter in European Seas (2013) of Beach Litter section and European Marine Observation and Data Network (EMODnet) Guidelines and forms for gathering marine litter data (Galgani et al., 2019). The survey was carried out in September 2019 with six people. The whole area from the water edge to the back of the beach was surveyed in 100 m long transect (Figure 3). Beach litter items were collected from Sakarya and Yeşilırmak beaches with the approx. 1400 and 2200 m2 surface areas.

In survey area all litter items greater than 2 cm were collected, counted, weighted and categorized. For cigarette butts, survey was carried out in 10 m sub-sampling units and this was proportioned to the total survey area.



Figure 3 - Collection of litter items from survey sites (September 2019-Turkey)

Litter abundance was calculated as items m<sup>-1</sup>, kg m<sup>-1</sup> and items m<sup>-2</sup>, kg/m<sup>-2</sup>. The litter items categorized according to material types (artificial polymer materials, cloth/textile, glass/ceramic, metal, rubber, paper/cardboard, processed/worked wood) (Figure 4). Beach cleanliness was evaluated according to Clean Coast Index (CCI) (Alkalay et al., 2007). Litter lists are provided as supplementary material. When a label or barcode was observed the information was recorded to determine whether the items are foreign or local.



Figure 4 - Litter categorization (September 2019-Turkey)

#### 3 Results

The total amount of litter items collected from the survey sites were 2849 in number-51.249 kg in weight and in TR001 and 692 in number-11.902 kg in weight in TR002. The amount of litter items in survey sites were 2.885 and 0.719 items m<sup>-1</sup>, 2.039 and 0.329 items m<sup>-2</sup> for TR001 and TR002, respectively (Table 2).

| Survey Site | items m <sup>-1</sup> | kg m <sup>-1</sup> | ltems m <sup>-2</sup> | kg m <sup>-2</sup> | Beach<br>cleanliness* |
|-------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|
| TR001       | 2.885                 | 0.512              | 2.039                 | 0.036              | Extremely<br>dirty    |
| TR002       | 0.719                 | 0.119              | 0.329                 | 0.006              | Moderate              |

| Table 2 - | The amou  | nt of litt | er items i   | in ner | unit area |
|-----------|-----------|------------|--------------|--------|-----------|
|           | The uniou |            | .ci iccins i | in per |           |

\* To determine cleanness of the beach, Clean Coast Index (CCI) was calculated following to formula (Alkalay et al. 2007);

 $CCI = \frac{Total \ litter \ count \ on \ transect}{Total \ area \ of \ transect} \times K$ 

where; K is a coefficient equal to 20.

According to CCI, beach scale is very clean (0-2), clean (2-5), moderate (5-10), dirty (10-20) and very dirty (>20).

The percentage distribution of litter types in survey areas are shown in Figure 5. In TR001 the most common litter type was found as artificial polymer materials 92.28% and followed by 4.18% glass/ceramic, 1.65% metal, 0.77% processed/worked wood, 0.74% paper/cardboard, 0.35% cloth/textile, 0.04% rubber. The most common litter type in TR002 was found as artificial polymer materials 94.36% and followed by 2.75% glass/ceramic, 1.59% metal, 0.58% cloth/textile, 0.43% processed/worked wood, 0.29% paper/cardboard.

The percentage distribution of litter types according to the weight in TR001 was 47.90% artificial polymer materials, 40% glass/ceramic, 5.68% paper/cardboard, 2.97% processed/worked wood, 2.34% metal, 0.71% cloth/textile, 0.40% rubber. In TR002 percentage distribution of litter weight was 64.52% artificial polymer materials, 21.00% glass/ceramic, 5.46% cloth/textile, 4.80% metal, 3.80% processed/worked wood and 0.42% paper/cardboard.



Figure 5 - The percentage distribution of litter types

The most common litter items in survey sites are shown in Table 3. Top ten items comprised ~70% of all litter items in TR001 and TR002. In general, both survey sites encountered top ten marine litter items occurred from artificial polymer material. However, in TR001 Glass/Ceramics Bottles, including pieces was found in top ten items. Litter items in survey sites commonly occurred from 2.5 cm > < 50cm size class plastic and polystyrene pieces and beverage related items (drink bottles, plastic caps/lids drinks) and food packaging items (crisps packets/sweets wrappers, food containers incl. fast food containers and etc.).

The top ten litter items and percentage distributions in TR001 was as follows Plastic caps/lids drinks (10.67%), Polystyrene pieces (2.5 cm > < 50cm- 10.53%), Plastic pieces (2.5 cm > < 50cm- 9.76%), Foam (packaging- 7.90%), Crisps packets/sweets wrappers (6.35%), Plastic rings from bottle caps/lids (6.14%), Foam (Polyurethane- 5.58%), Drink bottles ( $\leq 0.5l$ - 4.95%), Plastic caps/lids unidentified (4.18%) and Glass-Bottles, including pieces (3.23%). In TR002 top ten items and percentage distributions were Plastic pieces (2.5 cm > < 50cm- 18.06%), Polystyrene pieces (2.5 cm > < 50cm- 11.71%), Plastic caps/lids drinks (6.65%), Plastic caps/lids unidentified (6.21%), Food containers incl. fast food containers (5.92%), Foam (Polyurethane-5.06%), Drink bottles ( $\leq 0.5l$ -4.05%), Plastic construction waste (4.05%), Crisps packets/sweets wrappers (4.05%) and Plastic rings from bottle caps/lids (3.76%), respectively.

| Survey<br>Site | TSG_ML<br>Code | General Name                               | Materials                    | Item counts<br>(number) |
|----------------|----------------|--|------------------------------|-------------------------|
|                | G21            | Plastic caps/lids drinks                   | Artificial Polymer Materials | 304                     |
|                | G82            | Polystyrene pieces 2.5 cm > < 50cm         | Artificial Polymer Materials | 300                     |
|                | G79            | Plastic pieces 2.5 cm > < 50cm             | Artificial Polymer Materials | 278                     |
|                | G74            | Foam (packaging)                           | Artificial Polymer Materials | 225                     |
| TD001          | G30            | Crisps packets/sweets wrappers             | Artificial Polymer Materials | 181                     |
| IRUUI          | G24            | Plastic rings from bottle caps/lids        | Artificial Polymer Materials | 175                     |
|                | G74            | Foam (Polyurethane)                        | Artificial Polymer Materials | 159                     |
|                | G7             | Drink bottles <=0.5 l                      | Artificial Polymer Materials | 141                     |
|                | G23            | Plastic caps/lids unidentified             | Artificial Polymer Materials | 119                     |
|                | G200           | Bottles, including pieces                  | Glass/Ceramics               | 92                      |
|                | G79            | Plastic pieces 2.5 cm > < 50cm             | Artificial Polymer Materials | 125                     |
|                | G82            | Polystyrene pieces 2.5 cm > < 50cm         | Artificial Polymer Materials | 81                      |
|                | G21            | Plastic caps/lids drinks                   | Artificial Polymer Materials | 46                      |
|                | G23            | Plastic caps/lids unidentified             | Artificial Polymer Materials | 43                      |
| TR002          | G10            | Food containers incl. fast food containers | Artificial Polymer Materials | 41                      |
|                | G74            | Foam (Polyurethane)                        | Artificial Polymer Materials | 35                      |
|                | G7             | Drink bottles <=0.5 l                      | Artificial Polymer Materials | 28                      |
|                | G89            | Plastic construction waste                 | Artificial Polymer Materials | 28                      |
|                | G30            | Crisps packets/sweets wrappers             | Artificial Polymer Materials | 28                      |
|                | G24            | Plastic rings from bottle caps/lids        | Artificial Polymer Materials | 26                      |
|                |                |  |                              |                         |

#### Table 3 - Top ten litter items in survey sites

In survey sites was encountered with foreign origin litter items. The total 16 litter items were found to came from neighboring countries. It was 8 of them in TR001 and 8 of them TR002.

### 4 Conclusion

In conclusion, study results show that the western Black Sea coast especially Sakarya River mouth exposed to an important amount of marine litter pollution. According to early observations, baby napkins, glass bottle, metal bottle, plastic bag and broken glass items found at the beaches Sakarya and Yeşilırmak respectively.

Litter items on beaches were consist of mainly plastics like many other studies in the Turkish Black Sea coast (Aytan et al., 2020; Öztekin et al., 2020; Terzi et al., 2020). The enduringness and ascending usage of plastics is a major waste management problem (Thompson et al., 2009).

It had been observed that the litter items encountered during the surveys were commonly composed of Plastic and Polystyrene pieces 2.5 cm > < 50cm 2, which is similar to other researchers in the Turkish Black Sea coast (Terzi and Seyhan, 2017; Öztekin et al., 2020). These items are generally refraction products formed because of degradation of large plastics and it can also be thought of as the main source of microplastics.

All countries in coastal areas are facing the marine litter pollution problem and unfortunately this has become a global problem. In order to find a solution to this problem monitoring studies are very important to reduce the litter from the sources.

# 5 Supplementary Data: Litter lists

## TR001

| TSG_ML<br>Code | OSPAR<br>Code | UNEP<br>code | General Name   | Materials                     | ltem<br>counts |
|----------------|---------------|--------------|--|-------------------------------|----------------|
| G3             | 2             | PL07         | Shopping Bags, incl. pieces  | Artificial Polymer Materials  | 5              |
| G4             | 3             | PL07         | Small plastic bags, e.g. freezer bags, including pieces                | Artificial Polymer Materials  | 5              |
| G5             | 112           |              | Plastic bag collective role; what remains from<br>rip-off plastic bags | Artificial Polymer Materials  | 5              |
| G7             | 4             | PL02         | Drink bottles <=0.5l   | Artificial Polymer Materials  | 141            |
| G8             | 4             | PL02         | Drink bottles >0.5l  | Artificial Polymer Materials  | 38             |
| G9             | 5             | PL02         | Cleaner bottles & containers   | Artificial Polymer Materials  | 10             |
| G10            | 6             | PL06         | Food containers incl. fast food containers                             | Artificial Polymer Materials  | 53             |
| G12            | 7             | PL02         | Other cosmetics bottles & containers                                   | Artificial Polymer Materials  | 5              |
| G13            | 12            | PL02         | Other bottles & containers (drums)                                     | Artificial Polymer Materials  | 25             |
| G17            | 11            |              | Injection gun containers   | Artificial Polymer Materials  | 1              |
| G18            | 13            | PI 13        | Crates and containers / baskets  | Artificial Polymer Materials  | 3              |
| G21            | 15            | PI 01        | Plastic caps/lids drinks   | Artificial Polymer Materials  | 304            |
| 021            |               |              | Plastic caps/lids chemicals, detergents (non-                          |                               | 501            |
| G22            | 15            | PL01         | food)  | Artificial Polymer Materials  | 30             |
| GZ3            | 15            | PL01         | Plastic caps/lids unidentified   | Artificial Polymer Materials  | 119            |
| G24            | 15            | PL01         | Plastic rings from bottle caps/lids                                    | Artificial Polymer Materials  | 1/5            |
| G25            |               |              | lobacco pouches / plastic cigarette box<br>packaging                   | Artificial Polymer Materials  | 13             |
| G26            | 16            | PL10         | Cigarette lighters   | Artificial Polymer Materials  | 13             |
| G27            | 64            | PL11         | Cigarette butts and filters  | Artificial Polymer Materials  | 4*             |
| G28            | 17            |              | Pens and pen lids  | Artificial Polymer Materials  | 6              |
| G29            | 18            |              | Combs/hair brushes/sunglasses  | Artificial Polymer Materials  | 1              |
| G30            | 19            |              | Crisps packets/sweets wrappers   | Artificial Polymer Materials  | 181            |
| G31            | 19            |              | Lolly sticks   | Artificial Polymer Materials  | 3              |
| G32            | 20            | PL08         | Toys and party poppers   | Artificial Polymer Materials  | 16             |
| G33            | 21            | PL06         | Cups and cup lids  | Artificial Polymer Materials  | 83             |
| G34            | 22            | PL04         | Cutlery and travs  | Artificial Polymer Materials  | 4              |
| G35            | 22            | PL04         | Straws and stirrers  | Artificial Polymer Materials  | 17             |
| G36            | 23            |              | Fertiliser/animal feed bags  | Artificial Polymer Materials  | 1              |
| G43            | 114           |              | Tags (fishing and industry)  | Artificial Polymer Materials  | 3              |
| G49            | 31            | PL19         | Rope (diameter more than 1cm)  | Artificial Polymer Materials  | 5              |
| G50            | 32            | PL19         | String and cord (diameter less than 1cm)                               | Artificial Polymer Materials  | 27             |
| G53            | 115           | PL20         | Nets and pieces of net < 50 cm   | Artificial Polymer Materials  | 1              |
| G56            | 33            | PL20         | Tangled nets/cord  | Artificial Polymer Materials  | 1              |
| G59            | 35            | PL18         | Fishing line/monofilament (angling)                                    | Artificial Polymer Materials  | 1              |
| G60            | 36            | PL17         | Light sticks (tubes with fluid) incl. packaging                        | Artificial Polymer Materials  | 2              |
| G61            |               |              | Other fishing related  | Artificial Polymer Materials  | 13             |
| G62            | 37            | PL14         | Floats for fishing nets  | Artificial Polymer Materials  | 5              |
| G66            | 39            | PL21         | Strapping bands  | Artificial Polymer Materials  | 3              |
| G69            | 42            |              | Hard hats/Helmets  | Artificial Polymer Materials  | 1              |
| G70            | 43            |              | Shotgun cartridges   | Artificial Polymer Materials  | 7              |
| G71            | 44            | CL01         | Shoes/sandals  | Artificial Polymer Materials  | 11             |
| G73            | 45            | FP01         | Foam sponge  | Artificial Polymer Materials  | 4              |
| G74            |               |              | Foam (Polyurethane)  | Artificial Polymer Materials  | 159            |
| G74            |               |              | Foam (insulation)  | Artificial Polymer Materials  | 23             |
| G74            |               |              | Foam (nackaging)   | Artificial Polymer Materials  | 225            |
| G79            | 117           |              | Plastic pieces 2.5 cm $>$ < 50cm                                       | Artificial Polymer Materials  | 278            |
| G82            | 47            |              | Polystyrene pieces 2.5 cm $> < 50$ cm                                  | Artificial Polymer Materials  | 300            |
| G87            | ••            |              | Masking tane   | Artificial Polymer Materials  | 3              |
| G89            |               |              | Plastic construction waste   | Artificial Polymer Materials  | 53             |
| G95            | 98            | OT02         | Cotton bud sticks  | Artificial Polymer Materials  | 9              |
| G96            |               | OT02         | Sanitary towels/panty liners/backing strips                            | Artificial Polymer Materials  | 2              |
| G97            | 101           | OT02         | Toilet fresheners  | Artificial Polymer Materials  | 2              |
| G98            |               | OT02         | Dianers/nannies  | Artificial Polymer Materials  | 2              |
| 699            | 104           | PI 12        | Svringes/needles   | Artificial Polymer Materials  | <u>-</u><br>14 |
| G100           | 107           | r L I Z      | Medical/Pharmaceuticals containers/tubos                               | Artificial Polymer Materials  | 20             |
| G107           | 105           | RB02         | Flin-flons   | Artificial Polymer Materials  | <u>4</u> 1     |
| G124           | 48            | PI 24        | Plastic cans gasket  | Artificial Polymer Materials  | 31             |
| 0127           |               |              |  | A CHICIAL I OLYMPICI MALCHALS |                |

| G124      | 48        | PL24 | Other plastic items (Unidentifiable nylons)       | Artificial Polymer Materials | 47 |
|-----------|-----------|------|---|------------------------------|----|
| G124      | 48        | PL24 | Other household related items                     | Artificial Polymer Materials | 21 |
| G124      | 48        | PL24 | Other Plastic items (Plastic packaging materials) | Artificial Polymer Materials | 43 |
| G124      | 48        | PL24 | Wet wipe  | Artificial Polymer Materials | 8  |
| G124      |           | OT02 | Other sanitary pieces                             | Artificial Polymer Materials | 3  |
| G126      |           | RB01 | Balls   | Rubber                       | 1  |
| G145      | 59        | CL06 | Other textiles (incl. rags)                       | Cloth/Textile                | 10 |
| G148      | 61        | PC02 | Cardboard (boxes & fragments)                     | Paper/Cardboard              | 1  |
| G150      | 118       | PC03 | Cartons/Tetrapack Milk                            | Paper/Cardboard              | 11 |
| G151      | 62        | PC03 | Cartons/Tetrapack (others)                        | Paper/Cardboard              | 8  |
| G154      | 66        | PC01 | Newspapers & magazines                            | Paper/Cardboard              | 1  |
| G159      | 68        | WD01 | Corks   | Processed/Worked Wood        | 1  |
| G171      | 74        | WD06 | Other wood < 50 cm                                | Processed/Worked Wood        | 20 |
| G172      | 75        | WD06 | Other wood > 50 cm                                | Processed/Worked Wood        | 1  |
| G174      | 76        |      | Aerosol/Spray cans industry                       | Metal                        | 1  |
| G175      | 78        | ME03 | Cans (beverage)                                   | Metal                        | 12 |
| G178      | 77        | ME02 | Bottle caps, lids & pull tabs                     | Metal                        | 21 |
| ADDED     |           |      | Medicine bottle caps                              | Metal                        | 13 |
| G200      | 91        | GC02 | Bottles, including pieces                         | Glass/Ceramics               | 92 |
| G202      | 92        | GC04 | Light bulbs                                       | Glass/Ceramics               | 4  |
| G205      | 92        | GC05 | Fluorescent light tubes                           | Glass/Ceramics               | 1  |
| ADDED     |           |      | Medicine bottles                                  | Glass/Ceramics               | 19 |
| ADDED     |           |      | Cosmetic bottles                                  | Glass/Ceramics               | 3  |
| *number i | n 10 mete | ers  |   |                              |    |

### TR002

| G32PL07Shopping Bags, incl. piecesArtificial Polymer Materials2G43PL07Small plastic bags, e.g. freezer bags,<br>including piecesArtificial Polymer Materials1G74PL02Drink bottles <=0.5lArtificial Polymer Materials28G84PL02Drink bottles >0.5lArtificial Polymer Materials3G95PL02Cleaner bottles & containersArtificial Polymer Materials2G106PL06Food containers incl. fast food containersArtificial Polymer Materials41G1312PL02Other bottles & containers (drums)Artificial Polymer Materials11G1813PL13Crates and containers / basketsArtificial Polymer Materials1G2115PL01Plastic caps/lids drinksArtificial Polymer Materials46G2215PL01Plastic caps/lids unidentifiedArtificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26 |  |
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| G4JPL07including piecesArtificial Polymer Materials1G74PL02Drink bottles <=0.5l   |  |
| G74PL02Drink bottles <=0.5lArtificial Polymer Materials28G84PL02Drink bottles >0.5lArtificial Polymer Materials3G95PL02Cleaner bottles & containersArtificial Polymer Materials2G106PL06Food containers incl. fast food containersArtificial Polymer Materials41G1312PL02Other bottles & containers (drums)Artificial Polymer Materials11G1813PL13Crates and containers / basketsArtificial Polymer Materials1G2115PL01Plastic caps/lids drinksArtificial Polymer Materials46G2215PL01Plastic caps/lids chemicals, detergents (non-food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
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| G106PL06Food containers incl. fast food containersArtificial Polymer Materials41G1312PL02Other bottles & containers (drums)Artificial Polymer Materials11G1813PL13Crates and containers / basketsArtificial Polymer Materials1G2115PL01Plastic caps/lids drinksArtificial Polymer Materials46G2215PL01Plastic caps/lids chemicals, detergents (non-food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
| G1312PL02Other bottles & containers (drums)Artificial Polymer Materials11G1813PL13Crates and containers / basketsArtificial Polymer Materials1G2115PL01Plastic caps/lids drinksArtificial Polymer Materials46G2215PL01Plastic caps/lids chemicals, detergents (non-food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
| G1013PL13Crates and containers / baketsArtificial Polymer Materials1G2115PL01Plastic caps/lids drinksArtificial Polymer Materials46G2215PL01Plastic caps/lids chemicals, detergents (non-food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
| G21F13F1201Flastic caps/fids drinksArtificial Polymer Materials40G2215PL01Plastic caps/lids chemicals, detergents (non-food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
| G2215PL01Fusic cups/ itigs interneticity, detergents (non<br>food)Artificial Polymer Materials1G2315PL01Plastic caps/lids unidentifiedArtificial Polymer Materials43G2415PL01Plastic rings from bottle caps/lidsArtificial Polymer Materials26  |  |
| G23 15 PL01 Plastic caps/lids unidentified Artificial Polymer Materials 43<br>G24 15 PL01 Plastic rings from bottle caps/lids Artificial Polymer Materials 26   |  |
| G24 15 PL01 Plastic rings from bottle caps/lids Artificial Polymer Materials 26   |  |
| Table and a surplus of all attractions that have  |  |
| G25 I Obacco pouches / plastic cigarette box Artificial Polymer Materials 1   |  |
| G26 16 PL10 Cigarette lighters Artificial Polymer Materials 5   |  |
| G27 64 PL11 Cigarette butts and filters Artificial Polymer Materials 3*   |  |
| G28 17 Pens and pen lids Artificial Polymer Materials 6   |  |
| G30 19 Crisps packets/sweets wrappers Artificial Polymer Materials 28   |  |
| G32 20 PL08 Toys and party poppers Artificial Polymer Materials 7   |  |
| G33 21 PL06 Cups and cup lids Artificial Polymer Materials 5  |  |
| G35 22 PL04 Straws and stirrers Artificial Polymer Materials 5  |  |
| G3623Fertiliser/animal feed bagsArtificial Polymer Materials4   |  |
| G49 31 PL19 Rope (diameter more than 1cm) Artificial Polymer Materials 1  |  |
| G50 32 PL19 String and cord (diameter less than 1cm) Artificial Polymer Materials 5   |  |
| G61 Other fishing related Artificial Polymer Materials 1  |  |
| G70 43 Shotgun cartridges Artificial Polymer Materials 11   |  |
| G71 44 CL01 Shoes/sandals Artificial Polymer Materials 4  |  |
| G/4 Foam (Polyurethane) Artificial Polymer Materials 35   |  |
| G/4 Foam (insulation) Artificial Polymer Materials 21   |  |
| G/9 11/ Plastic pieces 2.5 cm > 50cm Artificial Polymer Materials 125   |  |
| G8Z 47 Polystyrene pieces 2.5 cm > < 50cm Artificial Polymer Materials 81   |  |
| G87 Masking tape Artificial Polymer Materials 1   |  |
| G89 Plastic construction waste Artificial Polymer Materials 28  |  |
| G95 96 0102 Collob bud siles Altificial Polynier Materials 11   |  |
| G97 101 0102 Tollet residences Artificial Polymer Materials 1   |  |
| G90 104 PI 12 Syringer/ needles Artificial Polymer Materials 10   |  |
| G100 103 Medical/Pharmaceuticals containers/tubes Artificial Polymer Materials 8  |  |
| G102 RB02 Flip-flops Artificial Polymer Materials 2   |  |
| G124 48 PL24 Unidentifiable nylons Artificial Polymer Materials 17  |  |
| G124 48 PL24 Other household related items Artificial Polymer Materials 6   |  |
| G124 48 PL24 Other plastic items (Unidentifiable nylons) Artificial Polymer Materials 6   |  |
| G124 48 OT02 Other sanitary pieces Artificial Polymer Materials 2   |  |
| G145 59 CL06 Other textiles (incl. rags) Cloth/Textile 4  |  |
| G151 62 PC03 Cartons/Tetrapack (others) Paper/Cardboard 1   |  |
| G152 63 PC03 Cigarette packets Paper/Cardboard 1  |  |
| G171 74 WD06 Other wood < 50 cm Processed/worked wood 3   |  |
| G174 76 Aerosol/Spray cans industry Metal 1   |  |
| G175 78 ME03 Cans (beverage) Metal 1  |  |
| G178 77 ME02 Bottle caps, lids & pull tabs Metal 2  |  |
| G188 MEO4 Other cans (< 4 L) Metal 3  |  |
| ADDED Medicine bottle caps Metal 4  |  |
| G200 91 GC02 Bottles, including pieces Glass/ceramics 9   |  |
| G205 92 GC05 Fluorescent light tubes Glass/ceramics 3   |  |
| AUDED Medicine bottles Glass/ceramics /   |  |

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