

The Need for Separate Collection of Waste Oils and Petroleum Residues

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CONTEXT

- ❑ Short description of ELINA project
- ❑ Waste Oil & Petroleum Residues definition & categorization
- ❑ Waste Oil & Petroleum Residues legislation
- ❑ Conclusion



ELINA project

“Integrated Green Life Cycle Management of Waste Oils and Residues”

LIFE10/ENV/GR606

Duration: 36 months

1/09/2011- 31/8/2014

Partners:

- CYCLON HELLAS SA (coordinator)
- ECOLOGICAL RECYCLING SOCIETY
- ANEK LINES

www.elina.org.gr



What is Waste Oils & Petroleum Residues (WO & PR)

Liquids, solid or semi- solids wastes that are composed of one or more petroleum fractions.

Great variation in composition in respect to:

- The percentage of petroleum in the WO&PR
- The kind of petroleum fractions

Difficult to identify according their composition

So...

Classification is done according to their source & the European Waste Catalogue



Sources of WO&PR

- Industries
- Ships

WO& PR can be categorized as

- Waste Lube Oil
- WO &PR from ships
- WO & PR from industries





Waste lube oil (WLO)

Main sources according European Waste Catalogue :

- mineral-based chlorinated engine, gear and lubricating oil
- mineral-based non-chlorinated engine, gear and lubricating oils
- synthetic engine, gear and lubricating oils
- readily biodegradable engine, gear and lubricating oils
- other engine, gear and lubricating oil

Depending on their source, 40-50% of lube oils are evaporated or burned during usage.

WLO legislation (1/3)

- Directive 2008/98/EC
 - lube oils are incorporated to the general waste management plan
 - priority to regeneration technologies vs thermal treatment
 - regeneration should be done in parallel with limitation of waste transfer
 - separate collection
- Law 2939/2001 about separate collection & recycling of specific waste streams
 - set the prerequisites and obligations for the collection system of waste lube oils

WLO legislation (2/3)

- Presidential Decree 82/2004
 - about the establishing measures and procedures for management of WLO
 - establish targets for collecting (70%) and processing 80% w/w of the collected WLO
 - promotion of regeneration
- Ministerial decision 105135/2004
 - approval of Hellenic Technical Consortium of Environmental Applications for Collection of Used Mineral Oils (EL.TE.P.E.)

WLO legislation (3/3)

- Common Ministerial Decision 29457/115/2005
sets the maximum allowable limits for emissions
from incineration plants
rules and conditions for the thermal treatment of
WLO to incineration plants
- L 4042/2012
waste production and management
prohibit transboundary transfer of WLO for thermal
treatment & mixing with other WO

Ship generated WO & PR international law

- OILPOL 54

“International Convention for the Prevention of Pollution of the Sea by Oil”



- MARPOL 73/78

“International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978”

Includes regulation about pollution prevention for all types of ship generated waste

MARPOL 73/78



ANNEX I

- Uncontrolled discharge of petroleum contaminated water originating from machinery spaces.
- Uncontrolled discharge of liquid and sludgeous phase petroleum residues originating from cargo spaces and
- Ballast tank arrangements regarding the use of a cargo tank as ballast water tank and vice versa (updated by Ballast Water Management Convention 2004).

MARPOL: Special provision about control of discharge of oil

No more than 15ppm

- Oil tankers must have in operation **oil discharge monitoring** and control systems along with slop tanks for the retention of oil on board (for oil tankers with tonnage over 150 tones). For bilge waters, oil tankers must have in operation oily phase – water **separating equipment** and **oil filtering system**.
- Ships (other than oil tankers) with tonnage over 400 tones must have in operation **oil discharge monitoring** and control systems, oily phase – water **separating equipment**, **oil filtering system** and a slop tank with **separate collection of WO & PR**.
- Ships with tonnage less than 400 tones must have proper installations for the **collection and retention on board of WO & PR**.



The measures to the water discharged is done by optical devices so we are not aware about the “dissolved” petroleum concentration.

Ships must...



- Collect and storage temporarily of WO & PR that can not be release to the sea
- Deliver WO & PR to the port facilities
- Monitor the ship for leakages
- Keep data about WO& PR produced & delivered to the ports

European Law

- Incorporates MARPOL
- Focuses on port reception facilities
- Promotes the cooperation between member states



Directives



- 2000/59/EC
sets obligation for ships and port facilities in order to pollution prevention
- 2002/84/ EC
prevention and minimization of sea pollution from waste disposals from ships
- 2005/35/EC
incorporate MARPOL annexes
prevention of discharging petroleum contaminated water from ships
need for cooperation in order to implement common protection strategy to all territorial sea borders

National Legislation



ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ

ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΔΗΜΟΚΡΑΤΙΑΣ

- L 1269/82- PD 88/97- PD 346/03
incorporate MARPOL
ship inspection in order to prevent pollution
- Presidential Decree 82/2004
sets measures and conditions for lube oil
alternative waste management
- L 4042/2012
waste production and management
end of life
labeling of dangerous wastes
inspections to waste management plants

Industrial PR & WO

- According the European Waste Catalogue
all PR & WO are dangerous wastes

They have at least 2 of the following properties:

- harmful
- carcinogenic category III (contain at least 0,1% w/w compound of light petroleum fractions
- carcinogenic category II (contain at least 1% w/w compound of medium petroleum fractions



Industrial PR & WO



Main sources:

- wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal
- wastes from inorganic chemical processes
- wastes from thermal processes
- wastes from shaping and physical and mechanical surface treatment of metals and plastics
- wastes from finishing containing organic solvent
- wastes from waste management facilities

National legislation industrial WO & PR

- Common Ministerial Decision (CMD) 50910/2727/2003
incorporates in national law the European Waste Catalogue
- CMD 13588/725/2006
measures, procedures and limitations relating to the
management of hazardous waste
approval of Environmental Terms set as a condition of
development of hazardous waste management facilities
National Planning hazardous waste management
- CMD 24944/1159/2006
technical specifications of dangerous waste management
alternative waste management
technology for WO & PR management



Conclusions

Adequacy of Institutional Management Framework WO & PR

- International & European legislation framework tackles efficiently the managerial requirements by:
 - supporting the separate collection and management of WLO, and
 - promoting clean technologies for WO & PR management.
- National legislation integrates International and EU legislation through laws, presidential decrees, common ministerial decisions for:
 - The separate collection of WLO
 - The special conditions about packaging & labeling & transfer
 - The waste management plan for port authorities

No provisions for separate collection of other WO & PR than WLO



Highlights of WO & PR

WLO management is adequate in national level

- High percentage of collection.
- Successful operation of WLO collection and management scheme.

WO & PR from ships

- Has room for improvement.
- Ships deliver different mixtures of wastes than the ones they declare and send notice for.
- There are no legal provisions that give the ability for the receiving port facilities to return the waste that does not match to the initial ship's declaration and/or needs special treatment.

WO & PR from industries

- Has room for improvement
- Due to limited volume industries mix them with other wastes
- Separate collection system can be organized to industrial areas in order to collect them properly

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