



Comments of CEDA, EuDA, ESPO and PIANC on the Technical Proposal for the review of the hazardous properties of waste

1. Background, review of the List of Waste (LoW) and of the hazardous properties

Following adoption of the revised Waste Framework Directive 2008/98 and in order to simplify and modernise European waste legislation, the Commission has conducted a study on the review of the European List of Waste and the hazardous properties performed by Ökopol GmbH and ARGUS GmbH. The study has provided information on the implementation of the LoW, proposing amendments of the LoW and assessing the impacts of those amendments. Based on these results, the Committee for the Adaptation to Scientific and Technical Progress and Implementation of the directives on Waste established under Art. 39 of Directive 2008/98/EC decided to set up a working group consisting of representatives of the Member States and the Commission (assisted by a consultant) in order to discuss the technical issues so as to prepare a decision on the necessary amendments to the List of Waste and the hazardous properties. Based on the discussions in the working group, a **Technical Proposal** has been drafted [1]. Stakeholders were invited to provide their comments thereto.

2. Objective of this paper

In this paper the Central Dredging Association (CEDA), the European Dredging Association (EuDA), the European Sea Ports Association (ESPO) and the International Navigation Association (PIANC) formulated a comment on the Technical Proposal of the EC working group on the list of waste and hazardous properties. EuDA and ESPO represent the European dredging and port industries respectively, while CEDA represents the European dredging and port industries as well as manufacturers, research and consultancy, government and academia from Europe, Africa and the Middle East. PIANC represents national governments and public authorities, corporations dealing with waterborne transport infrastructure worldwide.

These organisations bring forward the following messages:

- 1° To secure navigation all over Europe capital and maintenance dredging in ports and waterways is necessary and thus vital for the economy. The yearly dredging amount is estimated to 200 Mio. m³. Most of this material is of natural origin and remains in the aquatic environment;
- 2° in most cases across the EU, Dredged Material will not be classified as (hazardous) waste;
- 3° Dredged Material is regulated by international conventions, is affected by some EU legislation and is managed under national rules. Special attention is needed to cross compliance (and its simplification if possible);
- 4° Finally because of the aquatic environment in which it is handled and mostly relocated in, there are significant differences (physical properties) between dredged sediment and land extracted materials, which should be taken into account when legislating.

3. Technical proposal of EC

The assessment of the hazardousness of wastes is done based on

- Decision 2000/532/EC on the List of Waste (LOW) and
- Annex III to Directive 2008/98/EC on waste, which defines the properties that render wastes hazardous¹.

Both pieces of legislation are currently under review. The aim of the current review is to adapt the legislation to technical and scientific progress aligning it with the new chemicals legislation, i.e. Regulation (EC) No. 1272/2008 (CLP Regulation). The Technical Proposal will constitute the basis for a legislative proposal, which shall be subject to a vote by the Committee for the Adaptation to Scientific and Technical Progress and Implementation (TAC) of the Directives on Waste established under Article 39 of Directive 2008/98/EC in 2012.

The Technical Proposal includes definitions, hazard statements and concentration limits related to the hazardous properties defined in Annex III to Directive 2008/98/EC and to be included in Article 2 of Decision 2000/532/EC.

4. General comments

From the point of view of water management, dredging and Dredged Material management, the simplification and modernisation of the European legislation is very welcome. The current legal framework for dredging projects is complex.



In a workshop in Brussels [3] it was questioned if assessment of Dredged Material (hereafter “DM”) for decision making about aquatic disposal or upland treatment and disposal, should be done confirming to the Waste Framework Directive or to the Water Framework Directive or both.

Exemption of art 2, sub 3² EU Waste FD was discussed in detail. It was concluded that it is only possible to make use of this exemption for DM if the assessment of the

¹ The hazardous properties are named H1 to H15 in Directive 2008/98/EC. They shall be renamed HP1 to HP15 so as to avoid confusions with the hazard statements defined in Regulation 1272/2008/EC (CLP Regulation) which are named H xxx, where xxx stands for a 3-digit code.

² “Sediments relocated inside of surface waters for the purpose of managing waters and waterways of mitigating the effects of floods and droughts shall be excluded from the scope of this Directive if it is proven that the sediments are non-hazardous and without prejudice to compliance to obligations under other relevant Community legislation.”

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properties of the waste material (DM) shows that it is not hazardous [3]. Art 2 sub 3 therefore is only valid if assessment is done conformingly the Technical Proposal.

However for the Marine Environment international (and national) standards (a. o. OSPAR, LC) for aquatic disposal of DM are in use and discussed for many years already. Those international regulations comprise also assessment of DM, testing its acceptability for aquatic disposal on a case-by-case basis. For the Freshwater Environment the EU Water Framework Directive makes it necessary to make sediment management plans for river basins.



The technical proposal should refer to state of the art assessment methods for DM management and reflect the current best practices of DM management in Europe. Although the exact consequences of the proposal for DM management are not clear yet, the adoption of the Technical Proposal as legislation could potentially lead to problems in the management of Dredged Material.

In the Technical Proposal [1] it is stated that: *“There may be some cases where changes in chemicals classification could lead to changes in waste classification that would not be justified in all cases in view of the potential environmental effects: The case of CaO and Ca(OH)₂ containing wastes is an example of this problem (10 02, 10 01, 10 12 and 10 13). The appropriateness of a classification of these wastes is under discussion”*. Dredged Material (17 05 05 and 06) is another example of a very specific waste entry for which application of the current Technical Proposal would not be justified.

It seems that the Waste Framework Directive, the Water Framework Directive and the international regulations for the Marine Environment, aim to regulate the handling of the same material. Dredged Material is more or less in between regulations [2]. Guidance on how to deal with this cross compliance in practice would be helpful for the simplification and modernisation of the regulatory framework for Dredged Material.

For example, the WFD 2008/98 excludes sediment that is being dredged from the scope of the directive, unless the material displays hazardous properties, in which case it has to be treated as waste. The conditions of DM are very specific: there may be contaminating substances in the material, but these have been deposited from upstream sources. The sources may be industrial plants, urban waste water, sewage outlets or agricultural run-off. Consequently, the potential range of chemical



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substances that may be found in dredged sediment is considerable. In practice most dredged material is clean. If chemical substances occur the concentrations of individual substances are mostly low.

The approach in the Technical Proposal to sum the concentrations of the various substances of concern is therefore not directly applicable to dredged sediment as such and a separate ecotoxicity assessment may have to be considered.

Therefore, in order to use this approach for dredged sediment as well, a link with the provisions in the Water Framework Directive (2000/60) and its daughter directive for Environmental Quality Standards (2008/105) should be considered.

5. Specific comments

5.1 Approach

5.1.1 Approach based on volume fractions of hazardous substances

The Technical Proposal's preferred approach was to define the various properties that could render a particular "waste" hazardous in terms of volume content of chemicals that pose risks (chemicals of concern). It thus refers a.o. to the classification in regulation 1272/2008³ as a suitable starting point. The various categories of risk can be combined by assigning weight factors.

Nevertheless, would this approach not be suitable, alternative test methods are referred to in regulation 440/2008⁴, notably the ecotoxicity determination.

The proposal makes clear that hazardous properties and the HP 14 criterium (Ecotoxic) will be classified by the concentration of substances in the wastes. In this sense, the proposal follows a prescriptive approach rather than a risk approach. The international approach to the regulation of DM in marine waters that has evolved over the last 40 years and is essentially a risk-based approach weighing up a number of lines of evidence. Following this approach, ignoring bio-tests and bioavailability, the proposed assessment would systematically consider a worst case scenario.

It is important to bear in mind that DM contains a mixture of very many substances at relatively low levels (compared to many industrial wastes). The experience of a number of regulators of DM in Europe, is that DM that is rejected as unsuitable for disposal at sea and taken to facility's for treatment and/or disposal, is often not classed as hazardous waste i.e. DM assessed as suitable for disposal in the aquatic environment is very unlikely in most cases to be a hazardous waste.

A wide range of contaminants may be found in sediments derived from point and diffuse sources and they generally occur adsorbed to mineral surfaces and organic

³ Regulation 1272/2008 on classification, labelling and packaging of substances (CLP regulation). This regulation lists an enormous number of substances and provides the various danger or risk classifications.

⁴ Regulation 440/2008 outlining test methods available in support of the REACH policy on chemicals (REACH: registration, evaluation, authorisation, restriction of chemicals). This Regulation gives detailed indications about available methods. There is an entire chapter dedicated to methods to detect ecotoxicity.

matter. Disposal of DM within the aquatic environment keeps the material in a wet state when many inorganic contaminants of concern occur in an ionic state adsorbed to mineral surfaces and organic matter rather than as discrete inorganic compounds (low bio-availability). This is particularly so in the high ionic strength marine environment.

The preferred approach taken by the Technical Proposal to determine whether a material is hazardous, is based almost exclusively on both:

- the properties hazardous substances as found in products, bulk materials or objects; and
- the characteristics, sensitivities etc. of the physico-chemical and biological components of the terrestrial (or aquatic) environment including human health risk.

Dredged material is situated in the aquatic environment. The properties of DM are very different from those of almost all materials arising on land that have dominated the Directive's approach to determining whether a material is hazardous and the characteristics, sensitivities etc of the aquatic environment are also very different from that of the terrestrial environment. The determination that sediments are non-hazardous in Waste Framework Directive terms is insufficient to adequately protect the aquatic environment.

The referenced CLP regulation (1272/2008) provides various categories for classification. The categories of concern for dredged sediment are H 400 (aquatic acute), H 410 (aquatic chronic 1), H 411 (aquatic chronic 2), H 412 (aquatic chronic 3). The implication of the fact that only these hazard categories are referred to, is that dredged sediment situated in the water bed becomes 'hazardous' only when material is stirred up and the contaminants may be released to the water column. The properties H 400 – H 412 then come into play.

The first proposal of the group is to limit the assessment of chemicals of concern for dredged sediment to the list of substances contained in the revision to directive 2008/105 (Environmental Quality Standards). This list is included in *Annex 1* hereto. It contains a total of 48 substances. Within this listing, only those substances that have hydrophobic properties need further consideration. The reason is clear: substances of concern that are not hydrophobic will be present in the water column, and will be detected as such under the provisions of Dir 2000/60 and daughter directives. The substances that have hydrophobic properties will associate with the sediment fraction and become of potential concern when dredged or stirred up. The hydrophobic characteristics can be estimated on the basis of the log Pow. A preliminary estimate is that in the list of 48 substances there are between 10 and 15 substances that may be of real concern. A spot check of the classification under Regulation 1272/2008 concludes that most (possibly all) of these substances fall in the category H 410, aquatic chronic 1.

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Once this restriction is introduced, the hazardousness under HP 14 (ecotoxic) would be determined following one of the proposed options.

Option 1: formula as shown in the Technical Proposal without M-factor

Option 2: formula as shown in the Technical Proposal with M-factor

The M-factor is a multiplying factor for highly toxic components of mixtures.

The group cannot assess as yet which of the two options is more suitable. Introducing the M-factor will lead to immense uncertainties. For organic compounds the M-factors are not identifiable in the documents available so far.

Our first impression is, however, that dredged materials from inland and marine sites will only be classified as hazardous in exceptional cases (if any) following either option 1 or 2. For option 2 this is more probable than for option 1 since the M-factor (that can be 10 000 or even more) is considered only in option 2.

5.1.2 Approach based on ecotoxicity testing

The Technical Proposal has the option to perform ecotoxicity assessment with test methods as defined in Regulation 440/2008/EC. While such practice targets more directly the concern of the potential ecotoxic and biological effects of chemicals of concern in dredged sediment, the test methods listed in the referenced Regulation are not directly applicable to dredged sediment. In several Member States testing with bioassay batteries has been investigated during the last two decades, but there is no consensus as to suitability and reliability of these approaches. It thus does not seem wise to prescribe ecotoxicity testing methods at EU level.

Testing of DM for ecotoxicity in Europe has generally focused on bioassays. When identification of substances causing toxicity is required, this can be pursued through Toxicity Identification and Evaluation (TIE) techniques but this not a commonly used approach in the regulation of dredged material disposal and is not identical to determining hazardous conditions.

Indeed, the article 2(3) exemption solely concerns the relocation of sediments within surface waters and thus any consideration of the hazardous properties of sediments should logically be based on both:

- the properties of those sediments, and
- the characteristics, sensitivities etc of the physico-chemical and biological components of the aquatic environment.

This suggests that any approach to the determination of whether sediments proposed for relocation within surface waters are hazardous or non-hazardous, requires a separate and different technical approach to that set out in the Technical Proposal document; one that is tailored to the needs of the aquatic environment. Due to the significant influence of salinity on the physico-chemical properties and the biology of the aquatic environment, some differentiation between the approach to the freshwater and marine environments may be required for at least some aspects in any technical approach for the aquatic environment.”

The approach of the proposal does not attend the specific properties of DM and consequently the proposed assessment would most likely not be representative for the actual ecotoxicity (HP 14) of the DM at hand.

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It is important to look upon the consequences of the Technical Proposal for DM management in more detail.

The Technical Proposal could be amended with a recommendation that methods suitable to determine hazardous properties by ecotoxicity testing may be used in Member States. We stress the fact, nevertheless, that the testing criteria should be based on LC(50) or EC(50) basis.

5.2 Relevance of the Hazardous properties for DM

Quite a number of the hazardous properties are clearly inappropriate for Dredged Material, in particular:

- HP 1** Explosive
- HP 2** Oxidising
- HP 3** Flammable
- HP 5** Single Target Organ Toxicity(STOT)/Aspiration
- HP 8** Corrosive
- HP 12** Release of an acute toxic gas cat, 1, 2 or 3
- HP 15** Yielding another substance

Some of the hazardous properties could possibly be relevant but in practice they seem very unlikely to be so for Dredged Material given the limit values proposed:

- HP 4** Irritant
- HP 6** Acute toxicity
- HP 13** Sensitising

Some of the hazardous properties could potentially be relevant but they would require a different testing/assessment approach for Dredged Material:

- HP 7** Carcinogenic – could be relevant for biota but would use specific tests appropriate for sediments and potentially be a component of HP 14 when appropriate and necessary.
- HP 10** Toxic for reproduction - could be relevant for biota but for Dredged Material would need specific tests appropriate for sediments and potentially be a component of HP 14 when appropriate and necessary. This criterion does only make sense in combination with bio assays.
- HP 11** Mutagenic - could be relevant for biota but for Dredged Material would use specific tests appropriate for sediments and potentially be a component of HP 14 when appropriate and necessary.

Another hazardous property that is potentially relevant but may be of little concern in most instances is:

- HP 9** Infectious – Dredged Material can potentially contain microorganisms that could be infectious e.g. from sewage discharges. However, this is only likely to be a realistic potential problem very close to discharges of sewage or other wastes (code 19 of LoW) containing infectious microorganisms. Testing DM for this property should only be considered where evidence indicates that it would be appropriate and necessary.

HP 14 ‘Ecotoxic’ is the hazardous property that has been often suggested as the most relevant for Dredged Material. However, the proposed assessment methodology is inappropriate for DM, partially due to the limit values being based on aquatic acute toxicities of individual compounds that have to be measured in the material concerned (and for reasons mentioned in 5.1 and 5.2).

6. Conclusion and recommendations

1° Inclusion of a provision on Dredged sediment

From a technical point of view, this Technical Proposal is inappropriate for application to Dredged Material where that material is proposed to be disposed of in the aquatic environment. The proposal should refer to the current best practices of DM assessment and management in Europe.

Therefore, the Technical Proposal should be amended with the inclusion of a specific provision for dredged sediment stating that:

*the list of substances of concern to determine possible ‘**hazardousness**’ of dredged sediment is the list contained in Directive 2008/105 and its revisions. Of this list of substances only those with **hydrophobic properties** need to be taken into consideration for HP 14. This list thus needs to be complemented with the log Pow and/or the estimated partitioning factor, the hazard category (H, 400, 410, 411, 412) and any specific concerns for the substance such as PBT features persistent, bio-accumulating, toxic).*

2° Inclusion of a provision for an alternative method for ecotoxicity testing

Regarding the experiences in DM management, it should be pointed out that ecotoxicity testing of dredged sediments has been explored extensively, but so far no agreement has been reached between Member States or stakeholders on a comprehensive set of suitable test batteries. The results of testing for chronic effects are mixed and rather unreliable. The effects of acute toxicity are easier to assess and Regulation 440/2008 may be acceptable for that.

Therefore, a provision should be added in the Technical Proposal that would permit an alternative method of ecotoxicity testing in specific cases (such as dredged sediments). The reference to the Regulation 440/2008 needs to be made more explicit. However, the methods described in this regulation are not necessarily suitable to determine the ecotoxicity of the dredged sediment under consideration. The tests described are limited to testing for LC50 (50% mortality after x days) with fish, while another test uses mortality of Daphne.

3° Options 1 for H14

The consequences of applying options 1 and 2 on DM are not quite clear yet. Both options could cause problems for Dredged Material management. Consequences of the more simple approach of option 1 will be smaller than consequences of option 2. Time is needed to make a good estimation of the consequences of this Technical Proposal for DM management.



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4° Need for guidance on cross compliance

It seems that the Waste Framework Directive, the Water Framework Directive and the international regulations for the Marine Environment, aim to regulate the management of the same material. Dredged Material is more or less in between regulations [2]. Guidance on how to deal with this cross compliance (and/or prioritisation of the various applicable regulatory regimes) in practice would be helpful for the simplification and modernisation of the regulatory framework for Dredged Material.

The group recommends to explore the options to minimise the cross compliance in order to make sure that current practice in the different Member States will not be hampered but will be encouraged to keep improving itself. Maybe the Technical Proposal should link with existing water regulations. Alternatively, the Technical Proposal could be amended more significantly, to suit the assessment of DM too.

5° Next steps

Because of the complexity of the legislative framework covering DM and because of the particularities of the water environment from which it is extracted and to which it is relocated, the group composed of CEDA, EuDA, ESPO and PIANC would like to offer its help and knowledge to the Commission to further explore the concrete possibilities to make this Technical Proposal workable for application to dredged sediment.

7. References

1. Consultation on the review of the Hazardous Properties, Technical Proposal
2. Dutch German Exchange on Dredged Material, Dredged Material and Legislation, report nr 1, April 2003
3. Summary Notes of the Workshop on Dredged Material and the implementation of the new EU Waste Directive, EuDA, CEDA, Espo, Thursday 29th April 2010, Brussels.



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Central Dredging Association – CEDA: The Central Dredging Association (CEDA) is an internationally recognised independent professional society operating in Africa, Europe and the Middle East. It is an easy-to-access leading platform for the exchange of knowledge and an authoritative reference point for impartial technical information. Strongly recommending working with nature, CEDA actively strives to contribute towards sustainable development. CEDA members are corporations, professionals and stakeholders involved in a diversity of activities related to dredging and marine construction. CEDA is part of the World Organisation of Dredging Associations (WODA) and is responsible for Africa, Europe and the Middle East. www.dredging.org



European Dredging Association – EuDA: Founded in 1993, the European Dredging Association (EuDA) is a non-profit industry organisation for European dredging companies and related organisations, representing approximately 25,000 European employees “on land and on board of the vessels” in direct employment and more than 48,300 in indirect employment (supply and service companies) with approximately 750 seaworthy European flagged vessels.

Dredging activities are not well known by the larger public, but as a matter of fact European dredging companies are world market leaders with about 80% of the worldwide open dredging market and a turnover of €7.0bn in 2010. Although 70% of operations take place outside Europe, 90% of the returns flow back to Europe.

EuDA represents the interests of the European dredging industry, primarily at the European institutions. The Association will pursue its goals by endorsing policies to create fair and equitable conditions for competition; commits to respecting applicable national, European and international rules and regulations; commits to operating its fleet safely, effectively and responsibly. EuDA serves its members in all kind of requests related to dredging issues, presently strongly emphasising Social and Environmental affairs. These issues are coordinated by the Secretariat and executed by its specialised working groups composed of experts from the member companies. www.european-dredging.eu



European Seaports Association – ESPO: ESPO represents the seaports of the Member States of the European Union and has observer members from several other European countries. The European Union simply cannot function without its seaports. Almost all of the Community’s external trade and almost half of its internal trade enters or leaves through the more than 1200 seaports existing in the 22 maritime Member States of the EU. Without seaports, the European Union would not exist as an economic world power. Without seaports, there would be no internal market. ESPO ensures that seaports have a clear voice in the European Union.

ESPO’s mission is to influence public policy in the EU in order to achieve a safe, efficient and environmentally sustainable European port sector, operating as a key element of a transport industry where free and undistorted market conditions prevail, as far as practicable. www.espo.be



PIANC is the global organization providing guidance for sustainable waterborne transport infrastructure for ports and waterways. PIANC is the forum where professionals around the world join forces to provide expert advice on cost-effective, reliable and sustainable infrastructure to facilitate the growth of waterborne transport. Established in 1885, PIANC continues to be the leading partner for government and private sector in the design, development and maintenance of ports, waterways and coastal areas.

As a non-political and non-profit organization, PIANC brings together the best international experts on technical, economic and environmental issues pertaining to waterborne transport infrastructure. Members include national governments and public authorities, corporations and interested individuals. Providing expert guidance and technical advice PIANC provides guidance to public and private partners through high-quality technical reports. Our international Working Groups develop regular technical updates on pressing global issues to benefits members on shared best practices. www.pianc.org

Annex 1

LIST OF PRIORITY SUBSTANCES IN THE FIELD OF WATER POLICY

CAS no.	EUno.	Name of priority	logPow
(1) 15972-60-8	240-110-8	Alachlor	
(2) 120-12-7	204-371-1	Anthracene	
(3) 1912-24-9	217-617-8	Atrazine	2.6
(4) 71-43-2	200-753-7	Benzene	2.1
(5)		Brominated diphenylethers	
(6) 7440-43-9	231-152-8	Cadmium and its compounds	
(7) 85535-84-8	287-476-5	Chloroalkanes, C10-13	
(8) 470-90-6	207-432-0	Chlorfenvinphos	
(9) 2921-88-2	220-864-4	Chlorpyrifos (Chlorpyrifos-ethyl)	
(9a)		Cyclodiene pesticides (aldrin etc.)	
(9b)		DDT	6.3
(10) 107-06-2	203-458-1	1,2-dichloroethane	
(11) 75-09-2	200-838-9	Dichloromethane	
(12) 117-81-7	204-211-0	Di(2-ethylhexyl)phthalate (DEHP)	
(13) 330-54-1	206-354-4	Diuron	
(14) 115-29-7	204-079-4	Endosulfan	
(15) 206-44-0	205-912-4	Fluoranthene	4.7
(16) 118-74-1	204-273-9	Hexachlorobenzene	
(17) 87-68-3	201-765-5	Hexachlorobutadiene	
(18) 608-73-1	210-168-9	Hexachlorocyclohexane	
(19) 34123-59-6	251-835-4	Isoproturon	
(20) 7439-92-1	231-100-4	Lead and its compounds	
(21) 7439-97-6	231-106-7	Mercury and its compounds	
(22) 91-20-3	202-049-5	Naphthalene	
(23) 7440-02-0	231-111-4	Nickel and its compounds	
(24)		Nonylphenols	1.5
(25)		Octylphenols ⁷	
(26) 608-93-5	210-172-0	Pentachlorobenzene	
(27) 87-86-5	201-778-6	Pentachlorophenol	
(28)		Polyaromatic hydrocarbons (PAH) ⁸	
(29) 122-34-9	204-535-2	Simazine	
(30)		Tributyltin compounds	
(31) 12002-48-1	234-413-4	Trichlorobenzenes	
(32) 67-66-3	200-663-8	Trichloromethane (chloroform)	
(33) 1582-09-8	216-428-8	Trifluralin	
(34) 115-32-2	204-082-0	Dicofol	
(35) 1763-23-1	217-179-8	Perfluorooctane sulfonic acid and Derivatives (PFOS)	
(36) 124495-18-7		Quinoxifen	
(37)		Dioxins and dioxin-like compounds	
(38) 74070-46-5	277-704-1	Aclonifen	
(39) 42576-02-3	255-894-7	Bifenox	
(40) 28159-98-0	248-872-3	Cybutryne	
(41) 52315-07-8	257-842-9	Cypermethrin ¹¹	
(42) 62-73-7	200-547-7	Dichlorvos	
(43)		Hexabromocyclododecanes (HBCDD)	
(44) 76-44-8 / 1024-57-3	200-962-3 / 213-831-0	Heptachlor and heptachlor epoxide	
(45) 886-50-0	212-950-5	Terbutryn	
(46) 57-63-6	200-342-2	17alpha-ethinylestradiol ¹³	
(47) 50-28-2	200-023-8	17beta-estradiol ¹³	
(48) 15307-79-6	239-346-4	Diclofenac ¹³	

¹ CAS: Chemical Abstracts Service.