TECHNICAL REPORT

General BWR3 Checklist for EADs/ETAs
Dangerous substances

TR 034

October 2015

NOTE:

Withdrawn in 2019 after the endorsement of EOTA GD 014;

but contains the definition of the release scenarios for existing EADs

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Contents

1 INTRODUCTION

This EOTA Technical Report has been prepared by the EOTA PT 9 – "Dangerous substances" taking into account regulations of the Member States as well as European Regulations concerning dangerous substances. Furthermore the "Indicative List on dangerous substances" from the Expert Group on Dangerous Substances (EGDS) established under the Directive 89/106/EEC is considered. This document gives a general guidance for specification writers to decide, which assessment methods shall be taken into account for dangerous substances in products/product families. These methods can be assumed to be agreed within EOTA.

The **Review Table** (see paragraph 3) contains those construction products for which an EAD/ETA (or assessment methods and criteria agreed by EOTA under the Construction Products Directive 89/106/EEC) already exist and the included substances, associated with the release scenario/s for which the European Standard was granted. This list is the general reference source for the Substance List.

The **Substance List** (see paragraph 4.1) contains general clauses for the assessment and the expression of the product performance which are relevant for all products/components of construction products/kits/components of kits.

The list of products/substances takes into account national requirements notified in TRIS[1]. The list is not exhaustive and should not lead to the conclusion that products/substances which are not considered in this EOTA TR 034 might not be relevant to hygiene, health and the environment (Basis requirement for construction works, BWR 3, according to Annex I of Regulation (EU) No 305/2011).

CEN TC 351 considers some of the processed substances. The assessment is provisional as long as harmonized European assessment methods and criteria do not exist. Future European provisions could request other assessment methods and criteria.

Therefore, after identifying the release scenarios taking into account the intended use of the product:

1. The assessment of the product will be made by Technical Assessment Bodies (TAB) resorting to already existing European assessment methods developed by CEN (or by EOTA, if CEN has not yet developed such methods).

2. If European assessment methods as mentioned above do not yet exist and if the manufacturer wants to have his product used in a Member State which has requirements on the assessment of the performance of the product concerning dangerous substances, the national assessment method applicable in that specific Member State will be taken into account by TAB when choosing the assessment method.

Note: EOTA PT 9 is responsible for regularly updates based on the information about new aspects regarding dangerous substances in construction products received by Technical Assessment Bodies (TABs). Guidance on how to deal with dangerous substances in EADs and ETAs are provided for Technical Assessment Bodies in EOTA GD 14.

Version 2015-10 was agreed in EOTA Technical Board (TB) 15/09 in October 2015. This version was revised taking into account the wording of the Construction Products Regulation (EU) 305/2011 and the outcome of EOTA TB meeting in 2015 as well as conclusions made between the European Commission and EOTA on the EAD-Format.

[1] TRIS = Technical Regulation Information System, http://ec.europa.eu/growth/tools-databases/tris/en/

2 SCENARIOS FOR THE INTENDED USE

Regarding BWR 3 the following scenarios for the intended use should be considered. They refer to the role that a product is intended to fulfil in the framework of the construction work and the release scenario (which considers the release mechanism). Depending on the scope of the EAD/ETA the specification writer has to decide which of the following scenarios are relevant and applicable. Sometimes more than one release scenario is possible.

2.1 Definitions

2.1.1 Use scenario: Indoor "IA"

Sub scenarios taking into account the intended use (release scenario):

- **IA1: Product with direct contact to indoor air**
- **IA2: Product with indirect contact to indoor air (e.g. covered by permeable products)**
- **IA3: Product with no contact to indoor air**

2.1.2 Use scenarios: Outdoor "S/W"

Sub scenarios taking into account the intended use (release scenario):

- **S/W1: Product with direct contact to soil-, ground- and surface water**
- **S/W2: Product with indirect contact to soil-, ground- and surface water**
- **S/W3: Product with no contact to soil-, ground- and surface water**

2.1.3 Details

*Scenarios **IA1** and **S/W1** are applicable for products which are in contact with indoor air, soil or water in a way that dangerous substances could be released directly out of the product.*

*Scenarios **IA2** is applicable for products which are covered with other products but nevertheless could release dangerous substances to indoor air (e.g. products covered with porous/unsealed coverings incapable of avoiding migration, such as gypsum panels).*

*Scenario **S/W2** is applicable for products which can be leached by rain (e.g. external claddings) and could release dangerous substances which can have an impact on soil and water.*

*Scenarios **IA3** and **S/W3** are applicable for products which are completely covered with tight products capable of avoiding any kind of migration of dangerous substances to indoor air, soil or water.*

Note for TABs: Content restrictions may be relevant.

3 REVIEW TABLE

The following review table gives an overview about products – grouped into product families – for which European assessment documents are available / issued. It is shown which dangerous substances can be included in these products and for which release scenarios those products are effective.

Generally the presence of the following dangerous substances has to be checked and – if relevant - taken into account for all products:

Substances labelled with "Acute Toxicity" category 1, 2 or 3, "STOT" and "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B in accordance with Regulation (EC) No 1272/2008.

Additionally, for scenarios S/W1, S/W2, S/W3:

Substances labelled with "Aquatic Acute" category 1 or "Aquatic Chronic" category 1, 2, 3 or 4 and "Reproductive toxicity" category 1A or 1B in accordance with Regulation (EC) No 1272/2008.

To determine which dangerous substances are present in the construction product the applicant shall provide appropriate information to the TAB either by

- submitting the chemical constitution and composition of the … *(product and/or constituents of the product)* to the Technical Assessment Body,
  or
- submitting a written declaration to the Technical Assessment Body stating whether or not and in which concentration the … *(product and/or constituents of the product)* contains substances which have to be classified as dangerous according to Regulation (EC) No 1272/2008 and listed in the "Indicative list on dangerous substances" of the EGDS – taking into account the installation conditions of the construction product and the release scenarios resulting from there.

The use of recycled materials shall always be indicated, because this could lead to the implementation of further verification and assessment methods.

Components	Material(s)/Families of substances	Release scenarios
3.1 Insulation products (thermal, acoustic, ...)		
Factory made mineral wool (MW) panels	Man-made mineral fibers/ceramic fibers: Carcinogenic fibers of EU category C1 and C2	All
	Binder (aminoplast-/phenoplastic resin): formaldehyde	IA 2, IA 1, IA3
	Binder and waterproofing agents: VVOC, VOC, SVOC	IA 1/IA 2
	If coverings are used: plasticisers (DEHP, DBP, BBP)	IA 1/IA 2
	Halogenated aromatic compounds or organophosphorous compounds	IA 1/IA 2
	If recovered glass is used - lead glass: heavy metals (lead, arsenic, cadmium and its compounds, chromium, copper, mercury)	All
Factory made cellular glass (CG)	If clotted: bitumen (PAH)	IA 1/IA 2
	Lead, cadmium, arsenic, copper, mercury	S/W 1
	If clotted: glues (VVOC, VOC, SVOC)	IA 1/IA 2
	If clotted: glues (Bisphenol A)	All
Factory made expanded perlite (EPB)	Perlite: radioactivity	All
	Hydrophobic agents, if bitumen is used: PAH	IA 1/IA 2
	If natural resin, silicon or polysiloxane are used: VVOC, VOC, SVOC	IA 1/IA 2
	If coverings are used: Polybrominated diphenylether (PBDE), medium chained chlorinated paraffins (MCCP) - product and/or covering	IA 1/IA 2
	If coverings are used: plasticisers (DEHP, DBP, BBP)	IA 1,IA 2,IA3
Factory made expanded polystyrene (EPS)	Styrene: styrene residual monomer	IA1,IA 2, IA3 S/W 1, S/W 2
	Expanding agent: pentane	IA1,IA 2, IA3

Components	Material(s)/Families of substances	Release scenarios
		S/W 1, S/W 2
	Stabilizers: VVOC, VOC, SVOC	IA1,IA 2, IA3 S/W 1, S/W 2
	Flame retardants: Polybrominated diephenylether (PBDE), hexabromcyclododecane (HBCDD), medium chained chlorinated paraffins (MCCP) - product and/or covering	IA1,IA 2, IA3 S/W 1, S/W 2
	If coverings are used: plasticizsers (DEHP, DBP, BBP)	IA1,IA 2, IA3 S/W 1, S/W 2
Factory made extruded polystyrene (XPS)	Styrene: styrene residual monomer	IA 1,IA 2, IA3 S/W 1, S/W 2
	Expanding agents: pentane	IA 1,IA 2, IA3 S/W 1, S/W 2
	Plasticisers, stabilizers: DEHP, DBP, BBP, VVOC, VOC, SVOC	IA 1,IA 2, IA3 S/W 1, S/W 2
	Organohalogen compounds and substances which may form such compounds in the aquatic environment, organophosphorus compounds, substances which possess carcinogenic mutagenic or teratogenic properties in or via the aquatic environment	IA 1,IA 2, IA3 S/W 1, S/W 2
	Hydrofluorcarbon (HFC)	IA 1,IA 2, IA3 S/W 1, S/W 2, S/W 3
	Flame retardants : Polybrominated diephenylether (PBDE), hexabromcyclododecane (HBCDD), medium chained chlorinated paraffins (MCCP) - product and/or covering	IA 1,IA 2, IA3 S/W 1, S/W 2, S/W 3
Factory made rigid Polyurethane foam (PUR)	Polyisocyanat and polyol: VVOC, VOC, SVOC	IA 1/IA 2
	Expanding agents:, isocyanate, pentane, hydrofluorcarbons (HFC)	IA 1/IA 2
	Flame retardants: TCPP, epichlorhydrin, Polybrominated diephenylether (PBDE), medium chained chlorinated paraffins (MCCP) - product and/or covering	IA 1/IA 2
	Promoters: stannous organic compounds	All
	If coverings are used and also for the product: plasticisers (DEHP, DBP, BBP)	IA 1/IA 2
	Biocides	IA 1/IA 2
	Organic phosphorous esters including halogenated compounds (TCPP, TCED)	IA 1/IA 2
	Cadmium	IA 1/IA 2
In situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foams	Expanding agents: (HFCKW), isocyanate, pentane, hydrofluorcarbons (HFC)	IA 1/IA 2 S/W 1
	Flame retardants Polybrominated diephenylether (PBDE), medium chained chlorinated paraffins (MCCP) - product and/or covering	IA 1/IA 2 S/W 1
	If coverings are used and also for the product: plasticisers (DEHP, DBP, BBP)	IA 1/IA 2 S/W 1
	Biocides	IA 1/IA 2 S/W 1
	Tributyltin compounds (TBT), triphenyltin compounds (TPT)	IA 1/IA 2 S/W 2
	Cadmium	IA 1/IA 2 S/W 1
	Organic phosphoric esters including halogenated compounds (TCCP, TCED)	IA 1/IA 2 S/W 1
Factory made products of phenolic foam (PF)	Formaldehyde	IA 2; IA 1;IA3
	Phenol	IA 1/IA 2
	Isopropylchloride	IA 1/IA 2

Components	Material(s)/Families of substances	Release scenarios
Slabs based on natural fibres (coco fibre, peat fibre, cotton fibre)	Additives: biocides	IA 1/IA 2,IA3
	Binder, fibers: VVOC, SVOC,VOC	IA 1/IA 2,IA3
	Additives: Flame retardants	IA 1/IA 2,IA3
Cork slabs (ICB)	Additives: Biocides	IA 1/IA 2,IA3
	Binder (natural binder): VVOC, SVOC,VOC	IA 1/IA 2
	Formaldehyde	IA 2;IA 1;IA3
Wood based boards (particle boards,plywood,wood-fibre boards, block board and similar wood-based boards)	If coverings are used: plasticiser (DEHP, DBP, BBP)	IA 1,IA 2,IA3
	Urea-formaldehyd resin: formaldehyde	IA1,IA 2,IA3
	If used wood is used: biocides (pentachlorophenol)	IA1,IA 2,IA3
	Foam stabilizers: siloxane	IA 1,IA 2
Wood wool boards (WW)	If used wood is used: wood-preservatives	IA1,IA2,IA3
	If coverings are used: plasticisers (DEHP, DBP, BBP)	IA1,IA2,IA3
	Urea-formaldehyd resin: Formaldehyde	IA1,IA2,IA3
	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds	IA 1,IA 2,IA3
	PAH / Benzo(a)pyrene (if treatment with bitumen)	IA 1,IA 2,IA3
Expanded clay leightweight aggregate products	Radioactivity	IA 1/IA 2
	If sewage sludge is used for production: heavy metals	
In-situ thermal insulation formed from exfoliated vermiculite (EV) poducts	Radioactivity	IA 1/IA 2
Closed-cell EPDM foam		IA 1/IA 2
Cork granules and cork rubber scrap agglomerated with PUR-binder	VVOC, SVOC, VOC, biocides	IA 1/IA 2
Cork granules and rubber compound (natural or chloroprene rubber)	VVOC, SVOC, VOC, biocides	IA 1/IA 2
Thermal insulation board made of mineral material	VOC, SVOC, Medium-chained chlorinated paraffins, Man-made mineral fibres/ ceramic fibres	IA 1; IA 2, IA 3
Factory-made products of extruded, foamed Polyethylene Terephthalate (PET) for thermal and/or acoustical insulation	PET: VOC, SVOC If coverings are used: plasticisers (DEHP, DBP, BBP) Flame retardants: Polybrominated diphenylether (PBDE), medium chained chlorinated paraffins (MCCP) Product and/or covering: Biocides	All
Factory-made thermal and acoustic insulation made of polyester fibres	VOC, SVOC Flame retardants If coverings are used: plasticisers /DEHP, DBP, BBP)	IA2
3.2 Water vapour and air barriers		
Sheets/rolls made of organic natural fibers (coco fiber, peat fiber, cotton fiber)	Binder (VVOC, SVOC, VOC), fibers, additives (flame retardants, biocides)	IA 1,IA 2, IA3
Sheets/rolls made of anorganic fibers	Binder (VVOC, SVOC, VOC), man-made mineral fibers, Additives (flame retardants)	IA 1,IA 2, IA3
Sheets/rolls made of paper)	Binders (VVOC, SVOC, VOC), Additives (flame retardants, biocides)	IA 1,IA 2, IA3
Sheets/rolls made of rubber	Rubber (VVOC, SVOC, VOC)	IA 1,IA 2
	Additives (flame retardants, biocides)	IA 1,IA 2, IA3
Sheets/rolls made of PE /LDPE	Additives (flame retardants, biocides)	IA 1,IA 2, IA3
Sheets/rolls made of PP	Plasticiser (DEHP, DBP, BBP), flame retardants (Halogenated aromatic compounds or organophosphorous compounds)	IA 1,IA 2, IA3
Sheets/rolls made of PVC	Plasticiser (DEHP, DBP, BBP), flame retardants (Halogenated aromatic compounds or organophosphorous compounds), Bisphenol A, stabilisizer (Cadmium), medium chained chlorinated paraffins	IA 1,IA 2, IA3
Bituminous sheets/rolls	Bitumineous impregnated wood fibers (PAH, Benzo(a)pyrene)	IA 1,IA 2, IA3

Components	Material(s)/Families of substances	Release scenarios
3.3 Sheets/Tiles/Boards		
Solid wood panels	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds, biocides	IA 1,IA 2, IA3 S/W 1, S/W 2
High pressure Laminate (HPL)	VVOC, SVOC, VOC, Formaldehyde	IA 1,IA 2
Wood-based panels (HDF, MDF,...)	Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), wood preservatives, if coverings are used: plasticiser (DEHP, DBP, BBP), used wood, bitumineous impregnated wood fibres (PAH, Benzo(a)pyrene)	IA 1,IA 2, IA3 S/W 1, S/W 2
	Binder (aminoplast-/phenoplast-/urea-formaldehyd resin): formaldehyde, VVOC, VOC, SVOC	IA 1/IA 2
	Hydrophobic agents, with org. solvents: VVOC, VOC, SVOC	IA 1,IA2
composite panels	Binder (aminoplast-/phenoplastic – resin): formaldehyde	IA 1,IA 2, IA3
	Expanded PE coated with biadhesive: VVOC, VOC, SVOC	IA 1/IA 2
	Expanded PE coated with biadhesive: flame retardants, biocides	IA 1,IA 2 S/W 1, S/W 2
	Expanded PVC coated with adhesive: VVOC, VOC, SVOC	IA 1/IA 2
	Expanded PVC coated with adhesive: flame retardants, biocides	IA 1,IA 2 S/W 1, S/W 2
	Expanded PVC coated with adhesive: Bisphenol A, DEHP, Cadmium (Stabilisizer), Medium chained chlorinated paraffin	All
	Thermo-expanding sodium silicate and hydrate compounds coated with PVC adhesives: VVOC,VOC, SVOC	IA 1
	Thermo-expanding sodium silicate and hydrate compounds coated with PVC adhesives: Flame retardants	IA 1,IA 2 S/W 1, S/W 2
	Thermo-expanding sodium silicate and hydrate compounds coated with PVC adhesives: Bisphenol A, Medium chained chlorinated paraffin	All
Bricks	Clay: secondary mineral material, Aggregate concrete (secondary mineral material, heavy metals, semimetals, organic compounds), Autoclaved aerated concrete (heavy metals, semimetals), manufactured stone (secondary mineral material, heavy metals, semimetals, organic compounds)	S/W 1, S/W 2
	Natural stone: radioactivity	All
Gypsum panels	If phosphorous gypsum is used: radioactivity	IA 1, IA2
	Hydrophobic agents with org. solvents: VVOC, SVOC, VOC	IA 1, IA2
	Biocides (for using in wet rooms), man made mineral fibers/ceramic fibers	IA 1,IA2
Stone	Natural stone: radioactivity	IA 1,IA2
Concrete	Cement produced without secondary raw material/ de-rived fuels: heavy metals, semimetals, organic com-pounds	All
	Cement produced with secondary raw material: secondary mineral material, heavy metals, semimetals, organic compounds, radioactivity	All
	Cement or cement components produced with derived fuels: Heavy metals, semimetals, organic compounds	All
	Natural Aggregates > 2000 kg/m^3: radioactivity	All

Components	Material(s)/Families of substances	Release scenarios
	Artificial or reclaimed aggregates > 2000 kg/m^3: secondary mineral material, heavy metals, semimetals, organic compounds	All
	Natural lightweight aggregates ‹ 2000 kg/m^3: radioactivity	All
	Artificial or reclaimed aggregates ‹ 2000 kg/m^3: Secondary mineral material, heavy metals, semimetals, organic compounds	All
Fiber cement	Cement produced with secondary raw material: secondary mineral material, heavy metals, semimetals, organic compounds	S/W 1, S/W 2
	Cement or cement components produced with derived fuels: secondary mineral material, heavy metals, semimetals, organic compounds	S/W 1, S/W 2
	Mineral fibers	All
Metal	Coated with plastic coat of varnish: VVOC, VOC, SVOC	IA 1,IA2
	Coated with plastic coat of varnish: Arsenic and arsenic compounds	All
	Coated with laquers or corrosion protection agents: Cadmium	IA 1, S/W 1
Panels made of PVC	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds	IA 1,IA 2,IA3 S/W 2
	Bishenol A	All
	Biocides: arsenic compounds	IA 1,IA 2, IA3 S/W 2
	Metals and metallic compounds: Arsenic	IA 1,IA 2, IA3 S/W 1, S/W 2
	Metals and metallic compounds: Cadmium	All
	Plasticisers: DEHP, DBP, BBP	IA 1,IA 2 S/W 2
	Cadmium	IA 1,IA 2, IA3 S/W 2
	Medium chained chlorinated paraffins	IA 1,IA 2, IA3 S/W 2
Panels/sheets made of PP+EPDM	Additives: cadmium	IA 1,IA 2 S/W 2
	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds	IA 1,IA 2 S/W 2
	Additives, binder: VVOC, VOC, SVOC	IA 1,IA 2 S/W 2
Panels, sheets made of polycarbonare plastics	Bisphenol A	All
Bitumininous tiles	PAH, Benzo(a)pyrene Biocides	IA 1,IA 2, IA3 S/W 2
Glass	Metals and metallic compounds: lead	All
Laminates	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds	All
	Wood preservatives (substrate panel)	All
	Binder (aminoplast-/phenoplastic – resin): formaldehyde	IA 2, IA 1, IA3
	Wood fibres made of used wood	All
Mineral bounded Renderings	Cement /or cement lime mix: see "cement"	All
	Synthetic resin: VVOC, VOC, SVOC, heavy metals, semimetals, organic compounds	IA 1, S/W 2
	Epoxy resin: Bisphenol A	All

Components	Material(s)/Families of substances	Release scenarios
Organic bounded rendering based on styrol dispersion	Styrol dispersion: VVOC, VOC, SVOC, organic compounds	IA 1, IA 2
	Binder: Synthetic resin: VVOC, VOC, SVOC, organic compounds	IA 1,IA 2 S/W 2
	biocides	S/W 2
Organic bounded rendering based on vinylacathate dispersion	Binder and Dispersion: VVOC, VOC, SVOC, organic compounds	IA 1, IA 2 S/W 1, S/W 2
	biocides	S/W 2
Silicate bounded rendering (water glass based)	Binder: Synthetic resin: VVOC, VOC, SVOC, organic compounds	IA 1, S/W 2
Fire protective products (boards, slabs, mats, renderings)	biocides	S/W 2
	Flame retardants,	S/W 1, S/W 2
	Binder: VVOC, VOC, SVOC, organic compounds	S/W1, IA??
Dry floating flooring kit based on prefabricated interlocked units made of ceramic tiles and rubber mats	VOC, SVOC Recycled Rubber: PAH, B[a]P, nitrosamines	IA 1, IA 2, IA 3
3.4 Jointings/sealing product		
Glass clamping lug	Expanded PE coated with synthetic rubber adhesive: VVOC, VOC, SVOC, flame retardants	IA 1,IA 2
	Waterproofing agents: VVOC, VOC, SVOC, Flame retardants	IA 1,IA 2
	Metal and metallic compounds: lead	All
Silicone sealer	Man-made mineral fibers/ceramic fibers	All
	Binder (synthetic resin): VVOC, VOC, SVOC, Flame retardants	IA 1/IA 2
Acrylic sealer	VVOC, VOC, SVOC	IA 1/IA 2
Biadhesive tape for partition system fixing to floors	Man-made mineral fibers/ceramic fibers	All
Biadhesive tape for glass glueing	Glues: VVOC,VOC, SVOC	IA 1/IA 2
Bitumineous mastics	Bitumineous: PAH, Benzo(a)pyrene	IA 1/IA 2
Rubber mastics/Rubber underneath (roller) door	VVOC, VOC, SVOC	IA 1/IA 2
Liquid applicable sealing products (in general)	Flame retardants, biocides, binder (organic compounds)	S/W 1, S/W 2
Geotextiles for drainage systems	Flame retardants: Halogenated aromatic compounds or organophosphorous compounds Biocides	S/W 1
Coated Metal waterstop sheet for construction and controlled crack joints in waterproof concrete	Galvanized metal sheets: lead, arsenic, cadmium and its components Coating: VOC, SVOC, PAH, B[a]P Cement: Cement produced without secondary raw material/derived fuels: heavy metals, semimetals, organic compounds Cement produced with secondary raw material: secondary mineral material, heavy metals, semimetals, organic compounds, radioactivity Cement or cement components produced with derived fuels: Heavy metals, semimetals, organic compounds	IA 3, S/W 2
3.5 Prefabricated components / Pipes and related products		
Doors and windows	Metal: coated with plastic coat of varnish: VVOC, VOC, SVOC, Cadmium	IA 1
	Metal: coated with PVC laquers or corrosion protection agents: Arsenic, Cadmium, Medium chained chlorinated paraffins	IA 1,IA 2, IA3 S/W 2

Components	Material(s)/Families of substances	Release scenarios
	Solid wood: flame retardants: Halogenated aromatic compounds or organophosphorous compounds, biocides	IA 1/IA 2 S/W 2
	Wood based products: flame retardants: Halogenated aromatic compounds or organophosphorous compounds, Wood preservatives, if coverings are used: plasticisers (DEHP, DBP, BBP), used wood, binder (aminoplast - / phenoplastic – resin): formaldehyde, bitumineous impregnated wood fibres: PAH, Benzo(a)pyrene	IA 1/IA 2 S/W 2
	Organic compounds, hydrophobic agents with org. solvents : VVOC, VOC, SVOC	IA 1
	PVC: Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), Biocides (arsenic compounds), Additives: cadmium Plasticizers: DEHP, DBP,BBP	IA 1,IA 2, IA3 S/W 2
	PP: Additives (cadmium), flame retardants: (Halogenated aromatic compounds or organophosphorous compounds)	IA 1,IA 2, IA3 S/W 2
	PP: Additives, binder (VVOC, VOC, SVOC)	IA 1,IA 2
	PE: Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), Biozides (arsenic compounds), Additives (cadmium)	IA 1,IA 2, IA3 S/W 2
3.6 Framings (for internal use)		
Framing made of solid wood	Wood preservatives, Flame retardants (Halogenated aromatic compounds or organophosphorous compounds)	IA 2
Framing made of glued laminated timber	Wood preservatives, Flame retardants (Halogenated aromatic compounds or organophosphorous compounds)	IA 2
	Binder (aminoplast - / phenoplastic – resin): formaldehyde	IA 1/IA 2
Framing made of metal	Anodized/coated adjustable corner junction, 3 and 4 Way junctions: VVOC, VOC, SVOC	IA 1/IA 2
	Lacquers, varnishes, zinc or zinc coatings: Cadmium	IA 1/IA 2
Framing/Profiles made of PVC	Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), biocides: arsenic compounds, stabilizers (metals and metal compounds): cadmium, plasticisers: DEHP	IA 1/IA 2
Framing/Profiles made of PP+EPDM	Additives: cadmium, Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), Additives, binder (VVOC, VOC,SVOC)	IA 1/IA 2
Starting/Ending profiles, Junction profiles Shim for partition ending profile	Resin-bonded particleboard panels: VVOC, VOC, SVOC	IA 1/IA 2
	Epoxy-polyester varnish: VVOC, VOC, SVOC, Bisphenol A	IA 1/IA 2
Metal web beams and columns	Wood preservatives, Flame retardants (Halogenated aromatic compounds or organophosphorous compounds)	IA1/IA2
Light weight cementitious screed	<u>EPS</u> Styrene: styrene residual monomer Expanding agent: pentane Stabilizers: VVOC,VOC, SVOC <u>Cement</u> Cement: Cement produced without secondary raw material/derived fuels: heavy metals, semimetals, organic compounds Cement produced with secondary raw material: secondary mineral material, heavy metals, semimetals, organic compounds, radioactivity	IA 2, S/W 2

Components	Material(s)/Families of substances	Release scenarios
	Cement or cement components produced with derived fuels: Heavy metals, semimetals, organic compounds	
3.7 Timber or wood based prefabricated load-bearing members		
Solid wood members	Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), biocides	IA 1/IA 2 S/W 1, S/W 2
Wood-based members	Flame retardants (Halogenated aromatic compounds or organophosphorous compounds), wood preservatives, if coverings are used: plasticisers, used wood	
	Bitumineous impregnated wood fibers: PAH, Benzo(a)pyrene	
	Binder (aminoplast-/phenoplastic-resin): formaldehyde	IA 1/IA 2
	Binder (aminoplast-/phenoplastic-resin), hydrophobic agents with org. solvents: VVOC, SVOC, VOC	IA 1
Composite members	Binder (aminoplast-/phenoplastic-resin): formaldehyde	IA 1, IA 2, IA 3
	Coated expanded PE: VVOC, SVOC, VOC	IA 1
	Coated expanded PE: flame retardants, biocides	IA 1/IA 2 S/W 1, S/W 2
	Coated expanded PVC: VVOC, SVOC, VOC	IA 1
	Coated expanded PVC: plasticisers (DEHP, DBP, BBP)	IA 1/IA 2
	Coated expanded PVC: flame retardants, biocides	IA 1/IA 2 S/W 1, S/W 2
	Thermo-expanding sodium silicate and hydrate compounds coated with PVC adhesives: VVOC, SVOC, VOC	IA 1
	Thermo-expanding sodium silicate and hydrate compounds coated with PVC adhesives: flame retardants	IA 1/IA 2 S/W 1, S/W 2
Metal web beams and columns	Wood preservatives, Flame retardants (Halogenated aromatic compounds or organophosphorous compounds)	IA 1, IA 2
3.8 Sealings/Mastics (except for fire related issues)		
Glass clamping lug	Waterproofing agents: flame retardants	All
	Waterproofing agents: VVOC, VOC, SVOC	IA 1/IA 2
	Man-made mineral fibers/ceramic fibers: binder (synthetic resin): flame retardants, VVOC, VOC, SVOC	IA 1/IA 2
Silicone sealer with acetic reticulation for glass	Flame retardants, man-made mineral fibers/ceramic fibers	IA 1/IA 2
Biadhesive tape for partition system fixing to floors and glass glueing	VVOC, VOC, SVOC	IA 1/IA 2
	Flame retardants	IA1
	Plasticizers: DEHP, DBP, BBP, medium chained chlorinated Paraffins (MCCP)	IA 1
Rubber with or without foam backing	VVOC, VOC, SVOC, flame retardants	IA1
Mineral non-flexible sealing mass on the basis of cement	arsenic, lead, cadmium, chromium (total), copper, nickel, zinc, sulfate (SO_4^{2-}), TOC	S/W 2
3.9 Resilient floor coverings and Floor underlays		
Linoleum	VVOC, SVOC, VOC, formaldehyde, flame retardants	IA 1
PVC with or without foam and/or cork based backing	VVOC, SVOC, VOC, flame retardants, Tributyltin compounds (TBT), triphenyltin compounds (TPT), plasticisers (DEHP, DBP, BBP, medium chained chlorinated paraffins)	IA 1
	Formaldehyde	IA1, IA2, IA3

Components	Material(s)/Families of substances	Release scenarios
Expanded (cushioned) PVC	VVOC, SVOC, VOC, flame retardants, Tributyltin compounds (TBT), triphenyltin compounds (TPT), plasticisers (DEHP, DBP, BBP, medium chained chlorinated paraffins)	IA 1
Rubber with or without foam backing	VVOC, SVOC, VOC, flame retardants	IA 1
Rubber fibre mat to be used for impact sound insulation	VOC, SVOC Rubber: PAH, B[a]P; nitrosamines	IA 2, IA 3
Polyurethane (PU) foam mat to be used for impact sound insulation	PU: VOC, SVOC Rubber: PAH, B[a]P; nitrosamines	IA 2, IA 3
3.10 Building hardware (hinges, locks,...)		
Coated metals	VVOC, SVOC, VOC	IA 1
	Lead	IA1, IA2, IA3
3.11 Roof coverings		
Concrete tiles	Heavy metals, semimetals, organic compounds, secondary mineral material, radioactivity	S/W 2
	Coating: biocides	
Ceramic tiles	Secondary mineral material	S/W 2
	Coating: biocides	
Fiber-cement slates and sheets	Secondary mineral material, Heavy metals, semimetals, organic compounds, mineral fibers	S/W 2
	Coating: biocides	
Bituminous shingles	PAH, Benzo(a)pyrene, phenol	S/W 2
	Coating: biocides, additives to prevent root penetration	
Natural stone	Radioactivity	S/W 2
Metal sheet	heavy metals, semi metals	S/W 2
3.12 Glues		
Polyurethane glue	VVOC, SVOC, VOC	IA 1/IA 2
3.13 Intumescent / fire protective coatings		
Reactive Coatings for Fire protection of Steel elements	VVOC, SVOC, VOC, flame retardants	IA 1/IA 2 S/W 2, S/W 3
3.14 Concrete ingredients		
Fly ash	antimony, arsenic, barium, lead, cadmium, chromium (total), chromate (Cr VI), cyanide (total), cobalt, copper, molybdenum, nickel, mercury, thallium, vanadium, zinc, chloride (Cl^-), sulfate (SO_4^{2-}), PAH, PCB and TOC	S/W 1, S/W 2
Calcium Aluminate based refractory cement	aluminium, antimony, arsenic, barium, lead, cadmium, chromium (total), chromate (Cr VI), cyanide (total), cobalt, copper, molybdenum, nickel, mercury, thallium, vanadium, zinc, chloride (Cl-), sulfate (SO42-), fluoride (F-), TOC	S/W 1, S/W 2
Calcium Sulphoaluminate based Cement	Heavy metals, semimentals, chloride (Cl^-), sulfate (SO_4^{2-}), fluoride (F^-), organic compounds	S/W 1, S/W 2

4 CLAUSES FOR CONSIDERATION BWR 3

4.1 Substance list

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		Release scenarios			
1	"Acute Toxicity" category 1, 2 or 3 and "STOT" as well as "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B	All	The use of substances which must be labelled with "Acute Toxicity" category 1, 2 or 3 and "STOT" in accordance with *Regulation (EC) No 1272/2008 (CLP)* should be avoided; where the use of such substances cannot be avoided for technical reasons, a special assessment must take place. Substances which must be labelled with "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B in accordance with *Regulation (EC) No 1272/2008 (CLP)* shall not be actively used.	No substances which must be label "Acute Toxicity" category 1, 2 or 3 and "STOT", "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B are used. or There is no risk, that the contained substances which must be label "Acute Toxicity" category 1, 2 or 3 and "STOT", "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B will be released by consideration of all possible release scenarios. or Substances which must be label "Acute Toxicity" category 1, 2 or 3 and "STOT", "Carcinogenicity" category 1A or 1B and "Germ cell mutagenicity" category 1A or 1B are authorized according EU Regulation 1907/2006 for the named intended use.	**Germany:** DIBt approval Guideline "Assessment of the effects of construction products on soil and groundwater" and "Principles for the health assessment of construction products used in interiors"
2	"N", Substances toxic for reproduction (T, R 60; T, R 61) substances of categories 1 and 2 respectively 1A and 1B (CLP)	S/W 1, S/W 2	The use of substances which must be labelled "Aquatic Acute" category 1 or "Aquatic Chronic" category 1, 2, 3 or 4in accordance with *Regulation (EC) No 1272/2008 (CLP)* should be avoided if the use of such substances cannot be avoided for technical reasons, a special assessment must take place. Substances which must be labelled with "Reproductive toxicity" category 1A or 1B in accordance with *Regulation (EC) No 1272/2008 (CLP)* shall not be actively used.	No substance labelled with "Aquatic Acute" category 1 or "Aquatic Chronic" category 1, 2, 3 or 4 as well as "Reproductive toxicity" category 1A or 1B are used or Based on an individual assessment by the Technical Assessment Body there is no risk, that these substances will be released by consideration of all possible release scenarios.	**Germany:** DIBt approval Guideline "Assessment of the effects of construction products on soil and groundwater"
3	Tris(2-2,4 – Dinitrotoluene (2,4-DNT), Tris(2-chloroethyl)phosphate (TCEP), Diarsenic pentaoxide, Diarsenic trioxide, Lead	All	The use of substances listed in Annex XIV (authorisation list) of (EU) Nr. 143/2011 in the currently valid version should be avoided. If the use of such substances cannot be avoided for technical reasons, a special assessment must take place.	No substances listed in Annex XIV (authorisation list) of (EU) Nr. 143/2011 in the currently valid version are used. or	**European Union:** Regulation (EC) No 1907/2006 (Reach), (EU) No 143/2011:

Product characteristic		Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing	**Release scenarios**			
sulfochromate yellow (C.I. Pigment Yellow 34), Lead chromate, Lead chromate molybdate sulphate red (C.I. Pigment Red 104), Diisobutyl phthalate (DIBP), 5-tert-butyl-2,4,6-trinitro-m-xylene (Musk xylene), 4,4'-Diaminodiphenylmethane (MDA), Benzyl butyl phthalate (BBP), Bis(2-ethylhexyl) phthalate (DEHP), Dibutyl phthalate (DBP), Pentazinc chromate octahydroxide, Potassium hydroxyoctaoxodizincatedi chromate, Dichromium tris(chromate), Strontium chromate, 2,2'-dichloro-4,4'-methylenedianiline (MOCA), 1,2-Dichloroethane (EDC), Ammonium dichromate, Potassium chromate, Acids generated from chromium trioxide and their oligomers Group containing: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid, Chromium trioxide, Potassium dichromate, Sodium chromate, Sodium dichromate, Arsenic acid, Formaldehyde, oligomeric reaction products with aniline (technical MDA), Bis(2-methoxyethyl) ether (Diglyme),		If the "Sunset date" for the relevant substance is exhausted the authorisation application has to be submitted by the applicant. or If the latest applications date for the relevant substance is exhausted the authorisation has to be submitted by the applicant.	There is no risk, that the contained substances listed in Annex XIV (authorisation list) of (EU) Nr. 143/2011 in the currently valid version will be released by consideration of all possible release scenarios. or The contained substances listed in Annex XIV (authorisation list) of (EU) Nr. 143/2011 in the currently valid version are authorized for the intended use.	Annex XIV (authorisation list)

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
	Trichloroethylene, Hexabromocyclododecane (HBCDD), alpha-hexabromocyclododecane, beta-hexabromocyclododecane, gamma-hexabromocyclododecane				
4	Used wood	All	It has to be declared: a) that no used wood is used or b) the supplier of the used wood delivers a declaration that the used wood was tested for the content (given in mg/kg dry material) of: Arsenic, Lead, Cadmium, Chromium, Copper, Mercury, Chlorine, Fluorine, PCP and PCB. Tar oil (sight control): no pollution allowed *Note: The test method described in Annex IV of the Waste Wood Ordinance (Altholzverordnung – AltholzV) is recommended to be used.*	A statement has to be given: "No used wood is used" or "Used wood is used" or "The used wood fulfills the threshold values after testing". *Note: In some member states (e.g. in Germany) there are regulations according the use of used wood.*	**Germany:** Waste Wood Ordinance (Altholzverordnung – AltholzV) dated 15 August 2002 (promulgated on 23 August 2002 in the Federal Law Gazette Part I, Pg. 3302) DIBt approval Guideline “Assessment of the effects of construction products on soil and groundwater” and "Principles for the health assessment of construction products used in interiors
5	Halogenated aromatic compounds [e.g. Polybrominated diphenylether (PBDE)] or Organophosphorous compounds	All	The content of halogenated aromatic compounds or organophosphorous compounds shall be declared by the applicant (declaration of dangerous substances). or Due to the chemical composition of the product, the Technical Assessment Body has to verify that the product does not contain halogenated aromatic compounds or organophosphorous compounds.	The content of halogenated aromatic compounds or organophosphorous compounds is … or Due to the chemical composition or the declaration of dangerous substances, the product does not contain halogenated aromatic compounds or organophosphorous compounds.	**European Union:** Directive 807; Directive 2003/11/EC **Germany:** DIBt approval Guideline “Assessment of the effects of construction products on soil and groundwater” and

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
					"Principles for the health assessment of construction products used in interiors" **Norway:** 2007-9016-N (HBCDD, MCCP)
6	Tetrabrombisphenol A (TBBPA)	All	The content of Tetrabrombisphenol A shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Tetrabrombisphenol A is used.	The content of Tetrabrombisphenol A is … or Due to the chemical composition or the declaration of dangerous substances, the product does not contain Tetrabrombisphenol A. *Note: In some member states the content Tetrabrombisphenol A is restricted, e.g. proposed to be restricted in Norway (products with more than 1%).*	**Norway:** 2007/9016/N - C10C
7	Construction products manufactured using organic chemicals: SVOC, VOC	IA1, IA2, IA3	The release of VOC and SVOC (individual VOC/SVOCs and the sum emission of VOC/SVOC) has to be determined according ISO 16000-ff. and according to CEN TS 16516:2013.] Or Based on the chemical composition of the product the Technical Assessment Body has to assess if there is any risk that VOC, SVOC will be set free into indoor air considering all possible release scenarios. or a statement has to be given, that: The release of VOC, and SVOC is not verified with this EAD/ETA.	The product does meet the requirements. of … [country] according according to CEN TS *16516:* or Based on an individually assessment by the Technical Assessment Body there is no risk, that SVOC, VOC will be set free into indoor air by consideration of all possible release scenarios. or The release of dangerous substance to indoor air is not verified with this EAD/ETA. *In Germany and Belgium (from 01.01.2014) the assessment of VOC/SVOC for floor coverings and adhesives for floor coverings are obligatory.If regulatory requirement exists in the country of production and destination the product shall fulfil the requirements of these countries according to table "Classification criteria for SVOC, VOC".*	**Belgium:** 2012/568/B **France:** 2009/702/F **Germany:** "Principles for the health assessment of construction products used in interiors" Flemish Indoor Air Decree (BS 19/10/2004)

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
8	Construction products with secondary mineral material: Secondary mineral material	All	It has to be declared: - that no secondary mineral material is used or - that the supplier of the secondary mineral material delivers a declaration that the product was tested and complied with threshold values in the member states of destination.	A statement has to be given: "No secondary mineral material is used" or "Secondary mineral material is used" or "The secondary mineral material fulfills the threshold values after testing"	**Germany:** DIBt approval Guideline “Assessment of the effects of construction products on soil and groundwater” and "Principles for the health assessment of construction products used in interiors
9	Radioactivity/ Radonexhalation	All	The radioactivity and the radon exhalation has to be determined according the [*EOTA TR …-has to be worked out*] *In Poland the radioactivity is determined according to ITB Guide no 455/2010 Tests of Natural Radioactivity of Building Products*	The radioactivity has to fulfill the criteria of the EOTA TR [*XY- has to be worked out*] *Note:* *In Poland the values of f_1 and f_2 activity indicators shall not exceed the following values by more than 20%:* *1) f_1 = 1 and f_2 = 200 Bq/kg in relation to raw materials and construction components applied in buildings for the accommodation of people and livestock;* *2) f_1 = 2 and f_2 = 400 Bq/kg in relation to industrial waste applied in ground structures built in developed areas or areas designed for development pursuant to the local urban development plan, or applied to level such areas;* *3) f_1 = 3.5 and f_2 = 1 000 Bq/kg in relation to industrial waste applied in ground parts of structures not mentioned in the section 2 and to level areas not mentioned in the section 2;* *4) f_1 = 7 and f_2 = 2 000 Bq/kg in relation to industrial waste applied in underground parts of structures, as per section 3, and in underground structures, including railway and road tunnels, excluding industrial waste applied in underground mining excavations.*	**European Union:** Directive 96/29/Euratom **Austria:** [….] **Poland:** Regulation of the Council of Ministers of 2 January 2007 on the requirements imposed on the content of natural radioisotopes: potassium K-40, radium Ra-226 and thorium Th-228 in raw materials and materials applied in buildings for the accommodation of people and livestock, and in industrial waste applied in construction, and the control of radioisotope content.
10	Construction products with inorganic components: Heavy metals, semimetals	S/W 1, S/W 2	The release of heavy metals and semimetals has to be determined according to the CEN TR or TS [*number*] [*at present at the stage of draft]* or	The product does meet the requirements according CEN TR or TS [*add number*] [*at present in the stage of draft].* or	**Germany:** DIBt approval Guideline “Assessment of the effects of construction

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
			Based on an individually assessment by the Technical Assessment Body there is no risk, that heavy metals and semimetals will have any adverse effect on soil and/or groundwater by consideration of all possible release scenarios or a statement has to be given, that: The content and/or release of heavy metals and semimetals to soil and/or water is not verified with this [*choose: EAD/ETA].*	There is no risk that heavy metals and semimetals will have any adverse effect on soil and/or groundwater by consideration of all possible release scenarios. or The release of heavy metals and semimetals to soil/water is not verified with this EAD/ETA. For Calcium Sulphoaluminate based Cement see	products on soil and groundwater"
11	Wood preservatives: active substances	All	Only such biocides shall be applied which are approved according to Commission Directive 98/8/EC of the European Parliament and of the Council (the BPR - (EU) No. 528/2012- will apply EU-wide from 1st September 2013). As long as Annex I of Directive 98/8/EC is under development only such active substances in wood preservatives shall be applied which are notified for the product type 8 according Commission Decision 1451/2007. The declaration given in EN 15228 has to be considered. The content of PCP has to be determined according CEN TR 14823. The manufacturer has to declare the following information to the Technical Assessment Body: - Declaration of the wood preservative - Amount and stage of the treatment - Chemical name(s) of the active agent(s) - Concentration of the active agent.	The use of biocide(s) has/have to be declared by the applicant according EN 15228. The biocide is approved according Commission Directive 98/8/EC (the BPR - (EU) No. 528/2012- will apply EU-wide from 1st September 2013) or reference to a national approval has to be given. Based on the information declared by the manufacturer the following information about the wood preservative(s) has/have to be given: - Name of the wood preservative(s) - Amount and stage of the treatment - Chemical name(s) of the active agent(s) and - Concentration of the active agent. *Additionally the following has to be considered: Declaration of the content of PCP.* *In Germany the content of PCP does not exceed 5 ppm. In Norway the content of 0,1 % is proposed prohibited* *According to EC Directive 2003/53/EC the use of PCP and its salts and esters in concentrations of 0,1 mass% or more in substances or preparations are forbidden. Nonylphenol and nonylphenolethoxylate can not be market as a compound or a component of a preparation in concerators of 0,1 mass% or more, inter alia, as co-formulants inanto growth protection products and biocides.*	**European Union:** Directive 76/769/EEC, Directive 98/8/EC (the BPR - 528/2012/EU, 2007/565/EC **Germany:** Ordinance on Bans and Restrictions on the Market of Dangerous Substances, Preparations and Products pursuant to the Chemicals Act (ChemVerbotsV) **Belgium:** Royal Decree of 25/02/1996 ()- PCP Royal Decree of 05/10/1998 (Belgium)- creosote Royal Decree of 25/02/1996 (Belgium)- nonylphenol and nonylphenolethoxylate

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		Release scenarios			
				Additional A national approval is necessary in some member states, e.g. Germany. *Poland: The content of chlorophenols including pentachlorophenol in construction products used indoors is prohibited.*	**Norway:** 2007/9016/N - C10C **Poland:** Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.
12	Biocides (others than wood preservatives): active substances	All	In General only such active substances shall be applied which are approved according to Commission Directive 98/8/EC of the European Parliament and of the Council (the BPR - (EU) No. 528/2012- will apply EU-wide from 1st September 2013). As long as Annex I of Directive 98/8/EC is under development, only such biocides shall be applied which are notified for the applicable product type (Commission Decision 1451/2007 as amended). The manufacturer has to declare the following information to the Technical Assessment Body: - declaration of the biocide - amount and stage of the treatment - Chemical name(s) of the active agent(s) - Concentration of the active agent.	Based on the information declared by the manufacturer (chemical composition or declaration of dangerous substances) the following information has to be given: - the amount and stage of the treatment - the chemical name(s) of the active agent(s) and - the concentration of the active agent, and an EOTA internal agreement [via the commenting period] the product does meet the requirement for marketable antimicrobial agents as long Annex 1 of Directive 98/8/EC of the European Parliament and of the Council is under development. *Poland:* *The use of lindane ((γ-HCH) as a component of the impregnation and paint products for indoor use is prohibited*	**European Union:** Directive 76/769/EEC, Directive 98/8/EC (the BPR - 528/2012/EU, 2007/565/EC **Germany:** DIBt approval Guideline “Assessment of the effects of construction products on soil and groundwater” and "Principles for the health assessment of construction products used in interiors" **Poland:** Ordinance of Minister of Health and Social

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
					Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.
13	Construction products with organic components: organic compounds (e. g. TOC, PAH, PCB)	S/W 1	The release of organic compounds has to be determined according to the CEN TR [number] [*at present at the stage of draft]* or Based on an individually assessment by the Technical Assessment Body there is no risk, that organic compounds (e. g. TOC, PAH, PCB) will have any adverse effect on soil and/or groundwater by consideration of all possible release scenarios, taking into account the following criteria [add criteria]. or a statement has to be given, that: The content and/or release of organic compounds (e. g. TOC, PAH, PCB) are not verified with this [*choose: EAD/ETA].* For Calcium Sulphoaluminate based Cement see	The product does meet the requirements according CEN TR [add number] [*at present in the stage of draft].* or There is no risk that organic compounds (e. g. TOC, PAH, PCB) will have any adverse effect on soil and/or groundwater by consideration of all possible release scenarios. or The release of organic compounds (e. g. TOC, PAH, PCB) to soil and/or water is not verified with this EAD/ETA. For Calcium Sulphoaluminate based Cement see *Poland: The use of PCB is prohibited.*	**Germany:** DIBt approval Guideline “Assessment of the effects of construction products on soil and groundwater” **Poland:** Regulation of the Minister for the Economy of 24 June 2002 on requirements relating to the use and movement of substances posing a particular danger to the environment and the use and cleaning of systems or devices in which substances posing a particular danger to the environment were or are used (Dz. U. Nr 96/2002, poz. 860)

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
14	Man-made mineral fibers/ceramic fibers of EU category C1 and C2	All	Man-made mineral fibres/ceramic fibres, which are declared as carcinogenic of the EU category I and II (with exception of asbestos because asbestos is forbidden by European directive 76/769) shall not be used. note: exception for ceramic fibres: If the applicant can show sufficiently, that there are no alternative products on the market available to achieve the technical behaviour of the material, the Technical Assessment Body can decide to give an assessment of the products. Man-made mineral fibres shall only be used, if they fulfil one of the conditions of method I or method II. <u>Method I:</u> 1. Proof that a suitable intraperitoneal test did not express signs of excessive carcinogenicity 2. The half-life of intratracheal instillation of a 2 mg fibre-suspension for fibres longer than 5 µm, a diameter less than 3 µm und and a relation of length to diameter greater than 3:1 (WHO-Fasern) does not exceed 40 days, 3. The "Kanzerogenitätsindex KI", resulting from the difference between the sum of the mass contents (in %) of the oxides of sodium, potassium, boron, calcium, Magensium, barium and the double mass content (in %) of alumina results, is at least 40. <u>Method II:</u> The product has to meet the requirements given in comment Q and R of the Directive 97/69/EG. <u>Ceramic fibres</u>: Ceramic fibres shall not be used.* *Declaration of the carcinogenic potential of the used fibers.	Method I 1. The intraperitoneal test did not express signs of excessive carcinogenicity or 2. The half-life of the WHO-Fibres (L›5µm, D‹3µm, L/D› 3:1) is ‹40 days or 3. The "Kanzerogenitätsindex KI", resulting from the difference between the sum of the mass contents (in %) of the oxides of sodium, potassium, boron, calcium, Magensium, barium and the double mass content (in %) of alumina results, is ... <u>Method II</u> The product meets the requirements given in comment Q and R of the Directive 97/69/EG. *Note: For Germany method I is mandatory.*	**European Union :** Directive 97/69/EC, 1998-156-D (fibre composition); **Germany:** DIBt approval Guideline "Principles for the health assessment of construction products used in interiors
15	Plasticisers:	IA1, IA2, S/W 1, S/W 2	Plasticisers which are chemically based on DEHP or DBP should be avoided. Declaration that the product does not contain DEHP, DBP, BBP or MCCP.	The product does not contain DEHP, DBP, BBP. or	European Union: Regulation No 1907/2006/EC (Reach),

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
	DEHP, DBP, BBP, medium chained chlorinated paraffins (MCCP)		or The content of the used plasticisers has to be verified.	The content and the chemical type of the used plasticizer have to be given. *Note : The content of DEHP is proposed to prohibited in Norway on products with more than 0.1 percent DEHP by weight in the product's homogeneous component parts in plastic/PVC rubber, paint and glue.*	143/2011/EU: Annex XIV (authorisation list) **Norway:** 2007-9016-N (DEHP) 2007-9016-N (MCCP)
16	Metal and metallic compounds: Cadmium	All	The content of cadmium in plastics, paints, lacquers, varnishes, zinc or zinc coatings shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no cadmium is used.	Due to the chemical composition or the declaration of dangerous substances ,the content of the contained cadmium is …% per weight. or The product does not contain cadmium. *Note:* *The content of cadmium and cadmium compounds contained in plastics, paints, lacquers, varnishes, zinc or zinc coatings and used as a coating shall meet the respective regulations, e.g in Norway products containing more than 0,01 cadmium or cadmium compounds are proposed prohibited.* *Poland: The content of cadmium as a pigment in construction products is in Poland prohibited*	**Belgium:** Royal Decree of 25/02/1996 (Cadmium) **Norway:** 2007/9016/N **Poland:** Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence. **Austria:** "….."
17	Metal and metallic compounds: Arsenic and arsenic compounds	All	The content of arsenic and arsenic compounds shall be declared by the applicant (declaration of dangerous substances). or	The content of arsenic and arsenic compounds is/are… % per weight. or Due to the chemical composition or the declaration of dangerous substances , the product does neither contain arsenic nor arsenic compounds.	**Norway:** 2007/9016/N - C10C

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
			According to the chemical composition of the product, the Technical Assessment Body has to verify, that neither arsenic nor arsenic compounds are used.	*Note: The content of arsenic and arsenic compounds shall meet the respective regulations. In Norway products (see list II) with more than 0,01% arsenic by weight are proposed prohibited.*	
18	Metal and metallic compounds: Lead and lead compounds	All	The content of lead and of lead compounds shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that neither lead nor lead compounds are used.	The content of lead and lead compounds is/are… % per weight. or Due to the chemical composition or the declaration of dangerous substances, the product does neither contain lead nor lead compounds. *Note: In some member states the content of lead or of lead compounds shall be is restricted, e.g. in Norway (products with more than 0,01%) are proposed prohibited.* *Poland: The content of lead as a pigment in construction products is prohibited. Use of lead as an anti-corrosive agent is admissible in industrial buildings, except in the agricultural & food industry.*	**Norway:** 2007/9016/N - C10C **Poland:** Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.
19	Bishenol A	All	The content of Bisphenol A shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Bisphenol A is used.	The content of Bisphenol A is… % per weight. or The product does not contain Bisphenol A. *Note: In some member states the content of Bisphenol A is restricted, e.g. in Norway (products with more than 0,005% free Bisphenol A) are proposed prohibited.*	**Norway:** 2007/9016/N - C10C
20	Chlorinated paraffins: Medium-chained chlorinated paraffins (C14-C17 - MCCP)	All	The content of Medium-chained chlorinated paraffins, C14-C17 (MCCP) shall be declared by the applicant declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Medium-chained chlorinated paraffin, C14-C17 (MCCP) is used.	The content of Medium-chained chlorinated paraffins, C14-C17 (MCCP) is… % per weight. or Due to the chemical composition or the declaration of dangerous substances, the product does not contain Medium-chained chlorinated paraffins, C14-C17 (MCCP) *Note: In some member states the content Medium-chained chlorinated paraffins, C14-C17 (MCCP) is restricted, e.g. in*	**Norway:** 2007/9016/N - C10C

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		Release scenarios			
				Norway (products with more than 0,1%) are proposed prohibited.	
21	Organic tin compounds: Tributyltin compounds (TBT)	All	The content of Tributytin compounds (TBT) shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Tributyltin compounds (TBT) is used.	The content of Tributyltin compounds (TBT) is… % per weight. or Due to the chemical composition or the declaration of dangerous substances, the product does not contain Tributyltin compounds (TBT). *Note: In some member states the content Tributyltin compounds (TBT) is restricted, e.g. in Norway (products with more than 0,001%) are proposed prohibited.*	**Norway:** 2007/9016/N - C10C
22	Organic tin compounds: Triphenyltin compounds (TPT)	All	The content of Triphenyltin compounds (TPT) shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Triphenyltin compounds (TBT) is used.	The content of Triphenyltin compounds (TBT) is… % per weight. or Due to the chemical composition or the declaration of dangerous substances, the product does not contain Triphenyltin compounds (TBT). *Note: In some member states the content Triphenyltin compounds (TBT) is restricted, e.g. in Norway (products (see list II) with more than 0,001%) are proposed prohibited.*	**Norway:** 2007/9016/N - C10C
23	Perfluorinated compounds: Perflouroctyl acid (PFOA) and individual salts and esters of PFOA	All	The content of Perflouroctyl acid (PFOA) and individual salts and esters of PFOA shall be declared by the applicant (declaration of dangerous substances). or According to the chemical composition of the product, the Technical Assessment Body has to verify, that no Perflouroctyl acid (PFOA) and individual salts and esters of PFOA are used.	The content of Perflouroctyl acid (PFOA) and individual salts and esters of PFOA is/are % per weight. or Due to the chemical composition or the declaration of dangerous substances, the product does not contain Perflouroctyl acid (PFOA) and individual salts and esters of PFOA . *Note:In some member states the content Perflouroctyl acid (PFOA) and individual salts and esters of PFOA is restricted, e.g. in Norway (products with more than 0,005% are proposed prohibited)*	**Norway:** 2007/9016/N - C10C
24	Bitumineous impregnated wood fibres: PAH, Benzo(a)pyrene	IA1, IA2	Only bitumen on the basis of fuel oil has to be used. The content of PAH of the bitumen has to be determined	"No use of tar oils" or	**Germany:** DIBt approval Guideline

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
			according to US EPA. The concentration of BaP and PAH must not exceed 5 ppm respectively 50 ppm.	The content (measurement value) of benzo(a)pyrene in the bituminous material is…. The content (measurement value) of PAH in the bituminous material is…. *Poland:* *The use of construction products from carbon processing indoor is prohibited (tar, pitch).*	"Principles for the health assessment of construction products used in interiors" **Poland:** Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.
25	Specific organic compounds (PAH, B[a]P)	I/A1, I/A2, I/A3	The content of PAH including B[a]P has to be determined according to DIN ISO 18287 (GC-MS) or DIN ISO 13877 (HPLC)**.** or Based on an individually assessment by the Technical Assessment Body there is no risk, that PAH including B[a]P will be set free by consideration of all possible release scenarios, taking into account the following criteria [add criteria]. . or A statement has to be given, that: The content and/or release of PAH including B[a]P is not verified with this EAD.	The content of PAH must not exceed 50 mg/kg and the content of B[a]P must not exceed 5 mg/kg. or There is no risk that PAH including B[a]P will be set free by consideration of all possible release scenarios. or The content and/or release of PAH including B[a]P to indoor air is not verified with this EAD. *Poland:* *The use of construction products from carbon processing indoor is prohibited (tar, pitch).*	**Germany:** DIBt approval Guideline "Principles for the health assessment of construction products used in interiors" **Poland:** Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.
26	Formaldehyde	IA1, IA2	The formaldehyde release of "*[add product name]*" for use "*[add release scenario]*" shall be determined	The formaldehyde release of "*[add product name]*" for use in"*[add release scenario]*" is determined	**Germany:**

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
			according to the test standard "[i*nsert test method according footnote 3]*, if raw materials containing formaldehyde are used in the production process.	according to the test standard "[*Insert test method.]* to be ... µg/m³. Thus, [add product name] fulfils the criteria of formaldehyde class [add appropriate E-class],. or There are no ingredients which could release formaldehyde in the product, so that there is no need for a testing. *Note: In some MS for some products the use of EN 717-1 is mandatory"* *Note: If regulatory requirement exists in the country of production and destination the product shall fulfil the requirements of class E1 according to table "Classification criteria for the class E1 and E2 for the emission of formaldehyde".*	Ordinance on Bans and Restrictions on the Market of Dangerous Substances, Preparations and Products pursuant to the Chemicals Act (ChemVerbotsV) – Coated and uncoated derived timber products, DIBt-Directive 100 DIBt approval Guideline "Principles for the health assessment of construction products used in interiors"
27	Phenol	IA 1, IA 2, S/W1	The release of phenol has to be determined according EN ISO 16000-9. or Based on an individually assessment by the Technical Assessment Body there is no risk, that phenol will have any adverse effect on indoor air quality, soil and/or groundwater by consideration of all possible release scenarios.	Based on an individually assessment by the Technical Assessment Body there is no risk, that phenol will have any adverse effect on indoor air quality, soil and/or groundwater by consideration of all possible release scenarios. or The equilibrium concentration of phenol in the air of a test chamber according EN ISO 16000-9 is…. *Poland: The permissible phenol concentration in premises A and B category is 20/50 µg/m³.*	**Germany:** DIBt approval Guideline "Principles for the health assessment of construction products used in interiors" "Principles of the effects of construction products on soil and groundwater" Poland: Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction

Product characteristic			Assessment method	Expression of product performance (level, class, description)	Notified regulations
Dangerous substances have to be considered for product testing		**Release scenarios**			
					materials, facilities and components of furniture in rooms intended for human residence.
28	Oxides of Nitrogen (N_2O_3 and N_2O_4 as direct nitrosation agents as well as NO and NO_2 as precursor), - Nitrosylhalogenides (e.g.. NOCl, NOBr), - organic Nitrous- and Nitrousconnections, - nitrous acid (HNO_2) and there reaction forms, - Nitrite, e.g. Sodiumnitrite($NaNO_2$) and Potassiumnitrite(KNO_2): Nitrosamines	I/A1, I/A2,	The content of nitrosamines has to be determined by. the following method established by DIK (Deutsches Institut für Kautschuktechnologie e. V. in Hannover), published in "Kautschuk Gummi Kunststoffe, Nr. 6/91, pp. 514-52: 'Methods for the determination of n-nitrosamines in the air vulcanizates and vulcanization steams' by Liekefeld, R. et al. or The release of n-nitrosamines into the air is to be tested using the following BGI provision: *BGI 505-23 - Von den Berufsgenossenschaften anerkannte Analysenverfahren zur Feststellung der Konzentrationen krebserzeugender Arbeitsstoffe in der Luft in Arbeitsbereichen - Verfahren zur Bestimmung von N-Nitrosaminen* *Berufsgenossenschaftliche Informationen für Sicherheit und Gesundheit bei der Arbeit (BGI) (previous ZH 1/120.23)* or Based on an individually assessment by the Technical Assessment Body there is no risk, that Nitrosamines will be set free by consideration of all possible release scenarios.	The content (measurement value) of nitrosamines is… µg/m^3.	**Germany:** DIBt approval Guideline "Principles for the health assessment of construction products used in interiors"

Table: Classification criteria for the class E1 and E2 for the emission of formaldehyde

Class	Classification criteria	Test method
E1	Equilibrium concentration of formaldehyde in the air of a test chamber: ≤ 0.1 ml/m³ (≤ 0.12 mg/m³).	See footnote 2
E2	Equilibrium concentration of formaldehyde in the air of a test chamber: > 0.1 ml/m³ (0.12 mg/m³)	XYZ[3]
Requirements for CE marking: Release of formaldehyde: E1, E2 or NPD		

Note:

In Poland the permissible formaldehyde concentration in premises A and B category is 50/100 µg/m³ according to Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence.

2 Available methods are:

EN 717-1: 2004 *Wood-based panels - Determination of formaldehyde release - Part 1: Formaldehyde emission by the chamber method*"

EN ISO 16000-9: 2006 *Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method* in combination with **EN ISO 16000-3: 2001** *Indoor Air – Part 3: Determination of formaldehyde and other carbonyl compounds -- Active sampling method* and **EN ISO 16000-11: 2006** *Indoor air - - Part 11: Determination of the emission of volatile organic compounds from building products and furnishing -- Sampling, storage of samples and preparation of test specimens.*

For the comparability of the methods construction product TCs may consult CEN/TC 351, working group 2. A harmonised test method is under development by CEN/TC 351, working group 2.

4.2 Classification criteria for VVOC, SVOC, VOC

Belgium:

Products put on the market or made available shall conform the threshold limits laid down for the listed parameters. The test report shall provide the data to evaluate these parameters. The parameters are:

-TVOC and TSVOC;

- Volatile carcinogens of categories CAR 1A and CAR 1B;

- The R value;

- Formaldehyde

- Acetaldehyde

- Toluene

The R value should be calculated with the harmonized JRC EU-LCI values. As long as these are not available, the most recent available German LCI values should be used.

France:

Required parameters:

TVOC, as specified in ISO 16000-6:

- *- all regulated individual substances after 28 days:*
- *Formaldehyde, acetaldehyde, toluene, tetrachloroethylene, xylene, 1,2,3-trimethylbenzene, 1,4-dichlorobenzene, ethylebenzene, 2-butoxyethanol, styrene, see list below;*
- *resulting VOC emissions classes (A+, A, B or C)*

benzene, trichloroethylene, dibutylphthalate, diethylhexylphthalate, see list below, to check the compliance with the limit values to be applied to the regulated CMR substances after 28 days.

Substance	***CAS Nr.***
Formaldehyde	*50-00-0*
Acetaldehyde	*75-07-0*
Toluene	*108-88-3*
Tetrachloroethylene	*127-18-4*
Xylene	*1330-20-7*
1,2,3-Trimethylbenzene	*95-63-6*
1,4-Dichlorobenzene	*106-46-7*
Ethylbenzene	*100-41-4*
2-Butoxyethanol	*111-76-2*
Styrene	*100-42-5*
Benzene	*71-43-2*
Trichloroethylene	*79-01-6*
DBP, Dibutylphthalate	*84-74-2*
DEHP, Diethylhexylphthalate	*117-81-7*

Germany:

Required parameters:

$TVOC_{SUM}$ after 3 days as specified in German regulation

- *Carcinogens of categories CARC 1A and CARC 1B after 3 days;*
- *$TVOC_{SUM}$ and $TSVOC_{SUM}$ after 28 days as specified in German regulation;*
- *Carcinogens of categories CARC 1A and CARC 1B after 28 days;*
- *The R value after 28 days, calculated using the most recent available German LCI values;*
- *Sum if identified non-target compounds (without German LCI value) and non-identifies compounds after 28 days;*
- *Formaldehyde after 28 days as specified in German regulation.*

Determination of $TVOC_{SUM}$ and $TSVOC_{SUM}$

The $TVOC_{SUM}$ and $SVOC_{SUM}$ are determined by summing the individual concentrations of every identified and unidentified VOC and SVOC at a concentration of ≥ 5 µg/m³ after subtracting non-refering artefacts. In general, the highest possible degree of identification – beyond the information of ISO 16000-6 – should be pursed in order to enable an individual substance assessment.

$TVOC_{SUM}$ is defined as the sum of

1) *All individual target VOCs (LCI compounds);*

Every target VOC (LCI compounds) aall be identified via its mass spectrum and retention time, and adequate quantified via its substance-specific response factors, provided the available chromatogram allows reliable quantification. For this, it is assumed that all of these compounds are present either as pure substances or in form of certified standard solutions.

2) *All volatile carcinogentic substances of EU categories 1A and 1B;*

Every carcinogenic substance in EU categories 1A and 1B shall be defined via its mass spectrum and retention time, and quantified via its substance-specific response factors, provided the available chromatogram allows reliable quantification. For carcinogenic substances, a detection threshold of ≤1 µg/m³ should be ensured,

3) *All individual non-target VOCs and non-identified VOCs.*

Every non-target VOC and non-identified VOC is quantified via toluene equivalents.

$TSVOC_{SUM}$ is defined as the sum of all individual SVOCs. Each SVOC shall be quantified via toluene equivalents (TE).

Poland:

The use of methanol in the content above 20% by mass of construction product *in construction products is inadmissible:*

The use of listed substances in construction products used indoors is inadmissible"

- *The mixture of volatile aromatic and aliphatic hydrocarbons (called Farbasol)*
- *Ethylene glycol*
- *Aromatic hydrocarbons (mono- and bicyclic) except benzene – in the content above 20% by mass of construction products*

Note:

In Poland the concentrations of some volatile chemical substances are subject to separate limits according to Ordinance of Minister of Health and Social Welfare of 12 march 1996 on the permitted concentrations and intensities of agents harmful for health emitted by construction materials, facilities and components of furniture in rooms intended for human residence; Table 1. For the purpose of Technical Approvals VOC's emission from construction products used indoors is controlled. The release of VOCs is determined according to EN ISO 16000-9 (with the use of the model room - Annex B). Emissions of volatile organic compounds from construction product cannot exceed the valuesspecified in the regulations at 28 days of its execution.

Table 1: Substances whose concentration in the air of premises is restricted according to the regulation

	Name of the substance	**CAS Nr.**
1	*Acryloamide*	*79-06-1*
2	*Acrylonitrile*	*107-13-1*
3	*Ammonia*	*7664-41-7*
4	*Benzene*	*71-43-2*
5	*Butadiene*	*106-99-0*
6	*Butyl alcohol*	*Mixture of isomers*
7	*Chlorobenzene*	*108-90-7*
8	*Chlorophenols (except pentacholophenol)*	*Mixture of isomers*
9	*Chloronaphtalene*	*90-13-1(1-chloro)* *91-58-7(2-chloro)*
10	*Cyclohexane*	*110-82-7*
11	*Cyclohexanone*	*108-94-1*
12	*Dichlorobenzene*	*15321-22-6*
13	*Ethylbenzene*	*104-41-4*
14	*Phenol*	*108-95-2*
15	*Formaldehyde*	*50-00-0*
16	*Dibutyl phthalate*	*84-74-2*
17	*Phthalic anhydride*	*85-44-9*
18	*Ethylene glycol*	*107-21-1*
19	*Cresols*	*1319-77-3 (mixture of isomers)*
20	*Xylene*	*1330-20-7 (mixture of isomers)*
21	*p-Kumylophenol*	*599-64-4*
22	*Maleic anhydride*	*108-31-6*
23	*Naphthalene*	*91-20-3*
24	*Butyl acetate*	*Mixture of isomers*
25	*Ethyl acetate*	*141-78-6*
26	*Vinyl acetate*	*108-05-4*
27	*Ozone*	*10028-15-6*
28	*Pentachlorophenol*	*87-86-5*
29	*Styrene*	*100-42-5*
30	*Toluene*	*108-88-3*
31	*Trichloroethane*	*79-00-5*
32	*Trichloroethylene*	*79-01-6*