

Registration of Bitumen Uses according to REACH

Version 2

Caveat

This guidance is based upon the information available at the time of writing. Eurobitume and CONCAWE continue to work together to interpret the requirements and define the information that will be needed by members for Registration purposes.

The guidelines from ECHA regarding registration of uses are not yet finalised, but should be completed during October 2009. As such this guidance might be amended during October or even later. Nevertheless it is felt that an initial guidance document on bitumen uses under consideration for registration could be useful for communication between manufacturers and downstream users.

Communication to Downstream Users of bitumen

Eurobitume has considered a list of products and applications of bitumen. View or download this list at: www.eurobitume.eu/health_safety/reach-bitumen-uses.html. In accordance with the REACH technical guidance a 'Mapping' has been carried out on these uses to determine the Sectors of Use (SU) and Product Category and Process Categories (PROCs)* which are shown in the table below. A Description of the SUs PCs and PROCs is given in Annex 1.

Please note that the table below only concerns the bitumen element of any preparation/mixture. Advice on the REACH 'use mapping' of other materials that may be used in mixtures should be sought from the manufacturer of those substances.

Please note that, whilst REACH currently places no restrictions on handling and application temperature, the Eurobitume guidance on maximum safe handling temperatures recommends a maximum temperature of 200°C for paving grade bitumens and 230°C for industrial grade bitumens. For applications where these temperatures are exceeded it will be necessary for Downstream Users to ensure appropriate workplace control measures are in place to manage any HSE risks and also comply with any regulatory requirements.

At this time the technical guidance from ECHA on identification of uses remains in draft form. Eurobitume will amend the document if necessary and post it on its website.

Brussels, 11 November 2009

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* ECHA: Guidance on Information requirements and chemical safety assessment, Chapter R12: Use descriptor system (... 2009 Draft)

- The *sector of use* (SU) describes in which sector of the economy the substance is used. This includes manufacture in the chemical industry, mixing of substances at formulator's level as well as industrial, professional and consumer end-uses.
- The *chemical product category* (PC) describes in which types of chemical products (= substances as such or in preparations [mixture]) the substance is finally contained when it is supplied to end-uses (by industrial, professional or consumer users).
- The *process category* (PROC) describes the technical process or application in which the substance is used from the occupational perspective.

REACH USES	SU		PROC/PC	Brief Description and Examples
Manufacture of substance - manufacture & use as chemical feedstock	3,8	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15	Manufacture of bitumen or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading. <i>This use does not include manufacture of bitumen preparations/mixtures – See Formulation section, e.g. polymer modified bitumens, bitumen emulsions etc.</i>
Distribution of substance - distribution in bulk via depots	8	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Loading of bitumen & repacking (including drums & small packs), including distribution. (including marine vessel / barge, rail / road car and IBC loading)
Formulation & packaging of preparations & mixtures - use of bitumen to produce liquid formulations	10	Industrial	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15	Formulation, packing and re-packing of bitumen and its preparations/mixtures in batch or continuous operations, including storage, materials transfers, large and small scale packing, and maintenance. e.g. Polymer Modified bitumens, cutbacks, emulsions, paints, etc.
Uses in Coatings - use of bitumen formulations as coatings sealants, putties, etc	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15	Use of bitumen in coatings including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines & film formation) and equipment cleaning & maintenance. e.g. paints, inks, adhesives, emulsions
	22	Professional		
	21	Consumer		
Use in Oil & Gas field drilling and production operations - use of bitumen in formulated well drilling fluid	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC10	Oil field well drilling/production operations (including drilling muds and well cleaning) including material transfers, maintenance and disposal
	22	Professional		
Lubricants - Use of bitumen in formulated lubricants	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC20	Use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, maintenance and disposal of waste oil. e.g. open gear lubricants
	22	Professional		

REACH USES	SU		PROC/PC	Brief Description and Examples
Use of bitumen for the production of asphalt, solid construction materials, car components, etc.	3, 19	Industrial	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8b, PROC10, PROC13, PROC14, PROC21	Bulk transfers and mixing of hot aggregate and bitumen for production of asphalt. Production of roofing, water-proofing membranes. Cutting and packing of finished roofing and similar materials. Also covers re-use and/or recycling operations. e.g. paving, roofing mastic asphalt products and carpet tiles.
	22, 19	Professional		
Use of bitumen containing construction materials at elevated temperature (above 130°C), mechanical paving	19, 22	Professional	PROC8b, PROC10, PROC23, PROC24	Application of surface coatings and binders in road and construction activities , including material transfers and product disposal - Mechanical application. e.g. paving, roofing, mastic
Use of bitumen containing construction materials at elevated temperature, manual application using hand tools	19, 22	Professional	PROC8b, PROC9, PROC10, PROC 23, PROC 24	Application of surface coatings and binders in road and construction activities , including material transfers and product disposal – Manual application. e.g. mastic asphalt, roofing
Rubber production and processing - use of bitumen for the production of tyres and rubber goods	11, 10	Industrial	PROC14	Manufacture of rubber articles , including processing of raw rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.
Use of bitumen as a fuel	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16	Covers the use of bitumen as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste

Annex 1. Description of Sectors of Use, Product Categories and Process Categories applicable to bitumen

Sectors of use [SU] – sectors of end-use	
	Main user groups
SU 3	Industrial uses: uses of substances as such or in preparations at industrial sites
SU 8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU 10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU11	Manufacture of rubber products
SU19	Building and construction work
SU 21	Consumer uses: Private households (= general public = consumers)
SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical Product Category (PC)	
	Category for describing market sectors (at supply level) regarding all uses (workers and consumers)
PC 9a	Coatings and paints, thinners, paint removers
PC 9b	Fillers, putties

Process categories [PROC]		
	Process categories	Examples and explanations
PROC 1	Use in closed process, no likelihood of exposure	Use of the substances in high integrity contained system where little potential exists for exposures, e.g. any sampling via closed loop systems.
PROC 2	Use in closed, continuous process with occasional controlled exposure	Continuous process but where the design philosophy is not specifically aimed at minimizing emissions It is not high integrity and occasional expose will arise e.g. through maintenance, sampling and equipment breakages
PROC 3	Use in closed batch process (synthesis or formulation)	Batch manufacture of a chemical or formulation where the predominant handling is in a contained manner, e.g. through enclosed transfers, but where some opportunity for contact with chemicals occurs, e.g. through sampling
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises	Use in batch manufacture of a chemical where significant opportunity for exposure arises, e.g. during charging, sampling or discharge of material, and when the nature of the design is likely to result in exposure.
PROC 7	Industrial spraying	Air dispersive techniques Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting; Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls; in case of coating, overspray may lead to waste water and waste.
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	Sampling, loading, filling, transfer, dumping, bagging in non-dedicated facilities. Exposure related to dust, vapour, aerosols or spillage, and cleaning of equipment to be expected.
PROC 8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Sampling, loading, filling, transfer, dumping, bagging in dedicated facilities. Exposure related to dust, vapour, aerosols or spillage, and cleaning of equipment to be expected.
PROC 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage
PROC 10	Roller application or brushing	Low energy spreading of e.g. coatings. Including cleaning of surfaces. Substance can be inhaled as vapours, skin contact can occur through droplets, splashes, working with wipes and handling of treated surfaces.
PROC 11	Non industrial spraying	Air dispersive techniques Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls;

Process categories [PROC]		
	Process categories	Examples and explanations
PROC 13	Treatment of articles by dipping and pouring	Immersion operations Treatment of articles by dipping, pouring, immersing, soaking, washing out or washing in substances; including cold formation or resin type matrix. Includes handling of treated objects (e.g. after dyeing, plating,). Substance is applied to a surface by low energy techniques such as dipping the article into a bath or pouring a preparation onto a surface
PROC 14	Production of preparations or articles by tableting, compression, extrusion, pelletisation	
PROC 15	Use as laboratory reagent	Use of substances at small scale laboratory (< 1 l or 1 kg). Larger laboratories and R+D installations should be treated as industrial processes.
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected	Covers the use of material as fuel sources (including additives) where limited exposure to the product in its unburned form is expected. Does not cover exposure as a consequence of spillage or combustion.
PROC 17	Lubrication at high energy conditions and in partly open process	Lubrication at high energy conditions (temperature, friction) between moving parts and substance; significant part of process is open to workers. The metal working fluid may form aerosols or fumes due to rapidly moving metal parts;
PROC 18	Greasing at high energy conditions	Use as lubricant where significant energy or temperature is applied between the substance and the moving parts.
PROC 21	Low energy manipulation of substances bound in materials and/or articles	Manual cutting, cold rolling or assembly/disassembly of material/article (including metals in massive form), possibly resulting in the release of fibres, rubber fumes, metal fumes or dust;
PROC 23	Open processing and transfer operations with minerals/metals at elevated temperature	Sand and die casting, tapping and casting melted solids, drossing of melted solids, hot dip galvanising, raking of melted solids in paving; Exposure related to dust and fumes to be expected.
PROC 24	High (mechanical) energy work-up of substances bound in materials and/or articles	Substantial thermal or kinetic energy applied to substance (including metals in massive form) by hot rolling/forming, grinding, mechanical cutting, drilling or sanding. Exposure is predominantly expected to be to dust. Dust or aerosol emission as result of direct cooling may be expected.