

Registration of Bitumen Uses according to REACH

Version 4, December 2010

Caveat

This guidance is based upon the information available at the time of writing. Eurobitume continues to work with CONCAWE on interpretation of the requirements information on identified uses for REACH Registration purposes.

Communication to Downstream Users of bitumen

Eurobitume has compiled a list of bitumen applications & uses. View or download **List of Bitumen Applications & Uses** at: <http://www.eurobitume.eu/bitumen>

In accordance with the REACH technical guidance a "Mapping" has been carried out on these identified uses to determine the Sectors of Use (SU)¹, Process Categories (PROCs) and Product Category (where applicable) which are shown in the table below. A Description of the SUs PCs and PROCs is given in Annex 1.

The use descriptor system developed for REACH is generic to all chemical substances and can therefore be difficult to understand, the Eurobitume list therefore also includes a non-exhaustive description of typical applications described by the use descriptors. The process adopted by CONCAWE is intended to be inclusive, therefore if a specific use can be described using a combination of SU and PROC it would be considered to be an 'identified use' and therefore included in the REACH registration for bitumen. Please note that if it appears that a specific 'downstream' use/application is missing from the list, a different description of a use does not necessarily make it a different Identified use for the purposes of REACH.

As of the time of writing, it is anticipated that all Uses listed in the use mapping will be covered by REACH registrations, as given in the Use Descriptor map.

Please note that the list of uses only covers 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 safe handling temperatures recommends a maximum temperature of 200°C for paving grade bitumens and 230°C for oxidised and 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.

¹ ECHA: Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system, v.2, March 2010, ECHA-2010-G-05-EN

- The *sector of use category* (SU) describes in which sector of the economy the substance is used. This includes mixing or re-packing 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 mixtures) the substance is finally contained when it is supplied to end-uses (by industrial, professional or consumer users).
- The *process category* (PROC) describes the application techniques or process types defined from the occupational perspective

Use Number	REACH USES	SU		PROC/PC	Brief Description and Examples
1	Manufacture of substance - manufacture & use as chemical feedstock	3, 8, 9	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 (#4), e.g. polymer modified bitumens, bitumen emulsions etc.</i>
2	Distribution of substance - distribution in bulk via depots	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15	Loading of bitumen: Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.
3	Use of substance as intermediate	3, 8, 9	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15	Use of substance as an intermediate. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
4	Formulation & packaging of preparations & mixtures - use of bitumen to produce formulations	3, 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, mixing, tableting, compression, pelletization, extrusion, large and small scale packing, maintenance, sampling and associated laboratory activities e.g. Polymer Modified bitumens, cutbacks, emulsions, paints, etc. This also includes manufacture of asphalt mixtures (including the use of Reclaimed Asphalt Pavement (RAP)), roofing membranes, carpet tiles, encapsulation of waste materials
5	Uses in Coatings - use of bitumen formulations as coatings sealants, putties, etc.	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15	Use of bitumen and formulated products 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. Application of bitumen in materials in industrial I facilities. This includes the handling and application of asphalt, roofing membranes, paints, inks, adhesives, emulsions, de-dusting agents

Use Number	REACH USES	SU		PROC/PC	Brief Description and Examples
		22	Professional	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19	Use of bitumen and formulated products 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. Professional application of bitumen materials. This includes the handling and application of asphalt, roofing membranes, paints, inks, adhesives, emulsions, de-dusting agents
		21	Consumer	PC1, PC4, PC9a,b,c, PC10, PC15, PC18, PC23, PC24, PC31, PC34	Covers the consumer use of bitumen in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning. Also covers the use of solid bitumen formulations in construction applications
6	Use in Oil & Gas field drilling and production operations - use of bitumen in formulated well drilling fluid	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	Oil field well drilling operations (including drilling muds and well cleaning) including material transfers, on site formulation, well head operations, shaker room activities and related maintenance.
		22	Professional		
7	Lubricants - Use of bitumen in formulated lubricants	3	Industrial	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18	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	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, 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
8	Use in road and construction applications	22	Professional	PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes e.g. paving, roofing mastic asphalt products. Also covers encapsulation of waste materials

Use Number	REACH USES	SU		PROC/PC	Brief Description and Examples
9	Rubber production and processing - use of bitumen for the production of tyres and rubber goods	3, 10, 11	Industrial	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15, PROC21	Manufacture of tyres and general rubber articles , including processing of raw (uncured) rubber, handling and mixing of rubber additives, calendaring, vulcanising, cooling and finishing as well as maintenance. This Use can also apply to the removal and recovery of old bitumen containing construction products
10	Use of bitumen as a fuel	3	Industrial	PROC1, PROC2, PROC3, 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 - Brief description of Sectors of Use, Product and Process Categories included in the tables²

SECTORS OF USE	
SU 3	Industrial uses: Uses of substances as such or in preparations (mixtures) at industrial sites
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU9	Manufacture of fine chemicals
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU11	Manufacture of rubber products
SU21	Consumer uses: Private households (= general public = consumers)
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

PRODUCT CATEGORIES	
PC1	Adhesives, sealants
PC4	Anti-Freeze and de-icing products
PC9a	Coatings and paints, thinners, paint removers
PC9b	Fillers, putties, plasters, modelling clay
PC9c	Finger paints
PC15	Non-metal-surface treatment products
PC18	Ink and toners
PC23	Leather tanning, dye, finishing, impregnation and care products
PC24	Lubricants, greases, release products
PC31	Polishes and wax blends
PC34	Textile dyes, finishing and impregnating products; including bleaches and other processing aids

² Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system, v.2, March 2010, ECHA-2010-G-05-EN

PROCESS CATEGORIES		
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
PROC2	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
PROC3	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
PROC4	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
PROC5	Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)	Manufacture or formulation of chemical products or articles using technologies related to mixing and blending of solid or liquid materials, and where the process is in stages and provides the opportunity for significant contact at any stage
PROC7	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.
PROC8a	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.
PROC8b	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.
PROC9	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

PROCESS CATEGORIES		
PROC10	Roller application or brushing	<p>Low energy spreading of e.g. coatings</p> <p>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.</p>
PROC11	Non industrial spraying	<p>Air dispersive techniques</p> <p>Spraying for surface coating, adhesives, polishes/cleaners, air care products, sandblasting</p> <p>Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls.</p>
PROC13	Treatment of articles by dipping and pouring	<p>Immersion operations</p> <p>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,).</p> <p>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.</p>
PROC14	Production of preparations* or articles by tableting, compression, extrusion, pelletisation	<p>Processing of preparations and/or substances (liquid and solid) into preparations or articles. Substances in the chemical matrix may be exposed to elevated mechanical and/or thermal energy conditions. Exposure is predominantly related to volatiles and/or generated fumes, dust may be formed as well.</p>
PROC15	Use as laboratory reagent	<p>Use of substances at small scale laboratory (< 1 l or 1 kg present at workplace). Larger laboratories and R+D installations should be treated as industrial processes.</p>
PROC16	Using material as fuel sources, limited exposure to unburned product to be expected	<p>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.</p>
PROC17	Lubrication at high energy conditions and in partly open process	<p>Lubrication at high energy conditions (temperature, friction) between moving parts and substance; significant part of process is open to workers.</p> <p>The metal working fluid may form aerosols or fumes due to rapidly moving metal parts.</p>
PROC18	Greasing at high energy conditions	<p>Use as lubricant where significant energy or temperature is applied between the substance and the moving parts</p>
PROC19	Hand-mixing with intimate contact and only PPE available	<p>Addresses occupations where intimate and intentional contact with substances occurs without any specific exposure controls other than PPE.</p>

PROCESS CATEGORIES		
PROC20	Heat and pressure transfer fluids in dispersive, professional use but closed systems	Motor and engine oils, brake fluids Also in these applications, the lubricant may be exposed to high energy conditions and chemical reactions may take place during use. Exhausted fluids need to be disposed of as waste. Repair and maintenance may lead to skin contact.
PROC21	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, metal fumes or dust