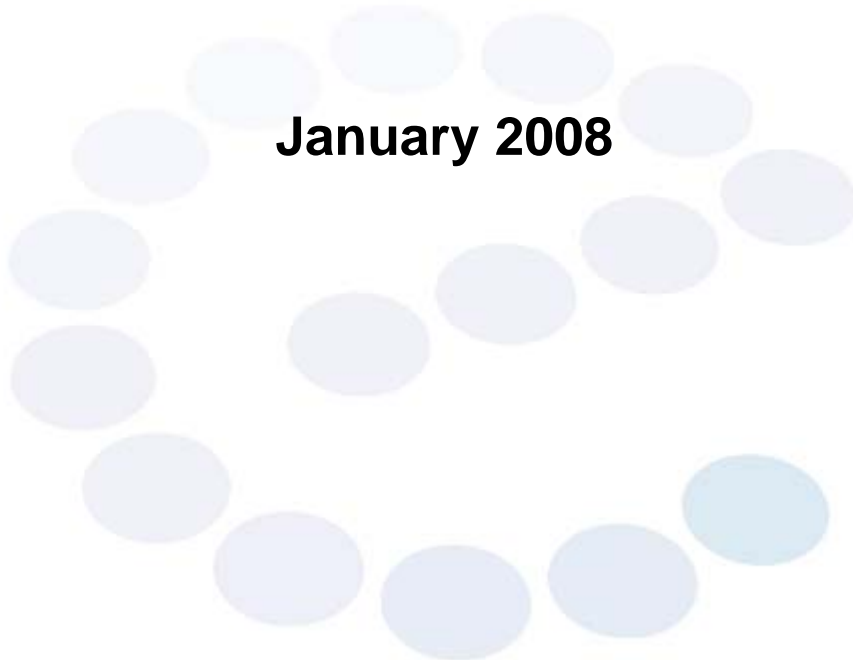


# **Guidance on Manufacturing Process Descriptions & Use of EINECS/CAS Number Definitions for REACH Registrations**

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## Introduction

This document provides guidance on manufacturing process descriptions and use of EINECS/CAS number definitions for REACH registrations. This document was developed by the Eurobitume REACH Task Force 2 and presents the consensus of the group concerning the interpretation of what constitutes a bituminous substance.

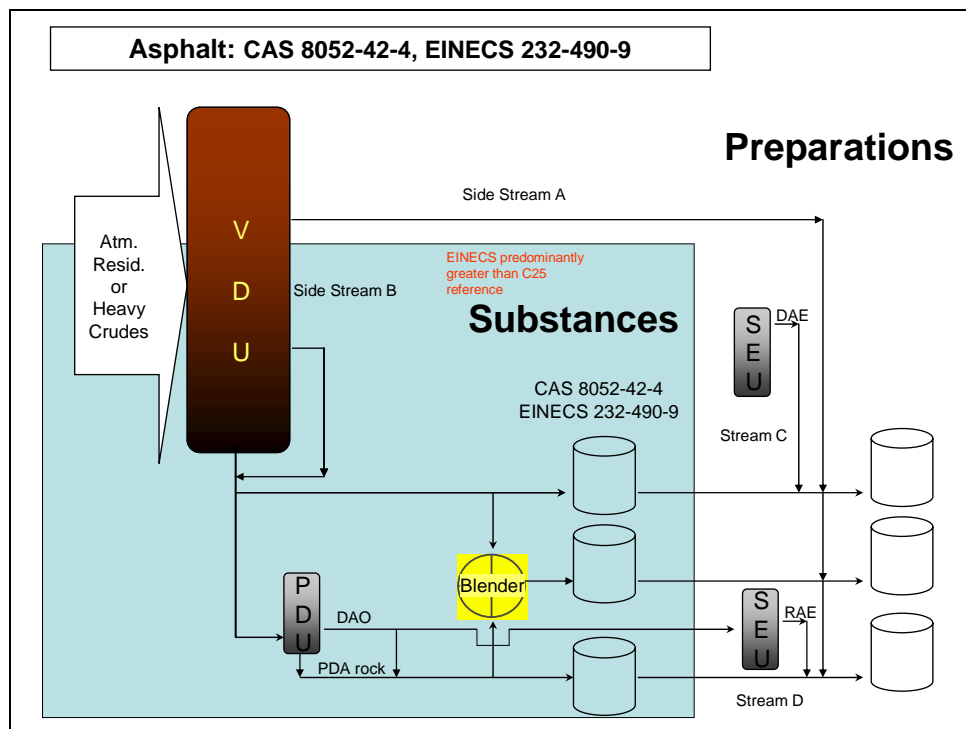
Eurobitume recommends that this document is used to develop REACH registration positions regarding bituminous substances. The document does not cover all situations but provides guidance on the major bitumen products.

## 8052-42-4 - Asphalt

A very complex combination of high molecular weight organic compounds containing a relatively high proportion of hydrocarbons having carbon numbers predominantly greater than C25 with high carbon to hydrogen ratios. It also contains small amount of various metals such as nickel, iron or vanadium. It is obtained as the non-volatile residue from distillation of crude oil or by separation as the raffinate from a residual oil in a deasphalting or decarbonisation process.

## Interpretation

It is recognised that asphalt (called bitumen in Europe) can be produced from vacuum distillation of atmospheric residuum or heavy crude oils by separation (with no further processing) and recombination of components predominantly greater than C25 in order to meet desired performance specifications. A rough estimation of these processes is provided in *Figure 1*: processes meeting the definition of a substance are identified in the blue box. Noted within the blue box, sidestream B is predominately greater than C25 and as such blending of this stream to meet performance specification would result in the substance bitumen CAS 8052-42-4.



**Figure 1**

Refining operations which do not meet the criteria identified above would result in a product that does not meet the definition identified by the CAS number 8052-42-4 and thus would be considered a preparation. This is illustrated by processes identified as being outside the blue box. Any blending component that does not meet the above criteria must be registered for use as a blending component in the production of bitumen. This will require the manufacturer to identify the blending component, its hazards and if needed, its risks. If appropriate, any hazardous properties transferred to the bitumen should be identified.

Side Stream A does not meet the greater than C25 criteria for bitumen. As such blending of Side Stream A with bitumen would result in a preparation and Side Stream A would need to be registered under REACH for use as a bitumen blending component. Similarly, Streams C and D, the result of further processing would not meet the bitumen definition and would need to be registered as a bitumen blending component under REACH.

As noted above, blending of substances that meet the description of asphalt under 8052-42-4 will result in asphalt as described by CAS number 8052-42-4. Blending of asphalts with most other bitumen substances which have undergone additional processing would result in bitumen mixtures or preparations. However, blending of vacuum residue (64741-56-6) with asphalt (8052-42-4) can result in 8052-42-4 asphalt as vacuum residue can be considered a subset of asphalt.

### 64741-56-6 - Residues (petroleum), vacuum

A complex residuum from the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly greater than C34 and boiling above approximately 495°C (923°F).

#### Interpretation

Vacuum residue can be obtained simply by utilising the vacuum residuum from vacuum distillation (see upper line in *Figure 2*). Further, vacuum residue can be produced by separation and recombination of components of a vacuum residue. Both the original vacuum residue and product would materially and analytically meet the description of vacuum residue (lower line and blending in *Figure 2*).

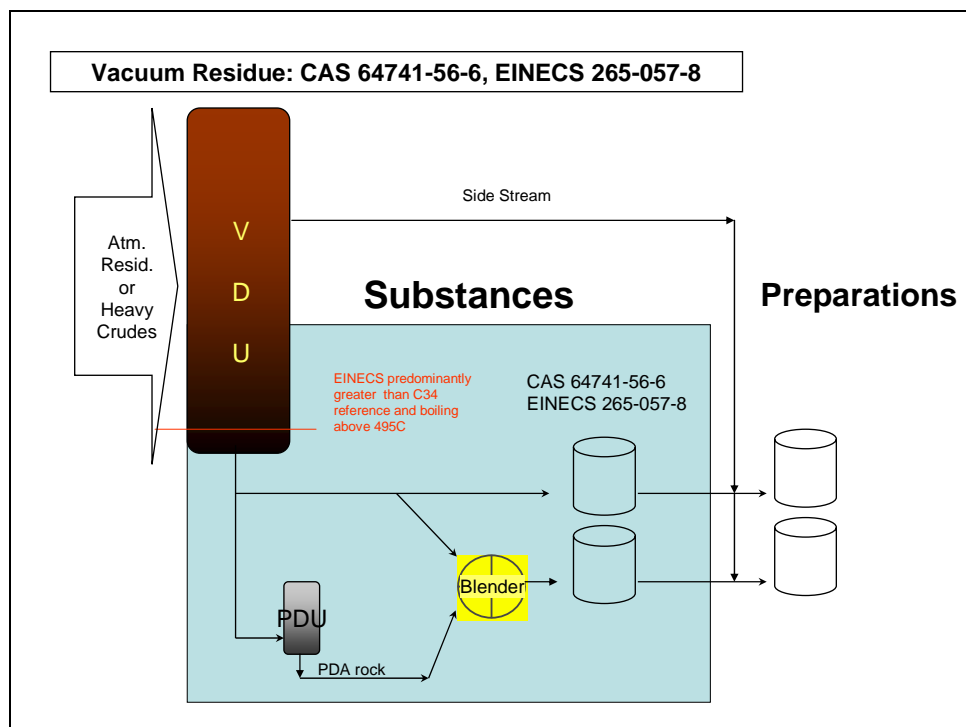


Figure 2

### 64742-93-4 - Asphalt, oxidised

A complex black solid obtained by blowing air through a heated residuum, or raffinate from a deasphalting process with or without a catalyst. The process is principally one of oxidative condensation which increases the molecular weight.

#### Interpretation

In the simplest terms, oxidised bitumen is generated by blowing substances defined as bitumen (for example, CAS # 8052-42-4, 64741-56-6, 92062-05-0). These substances will need to be registered as feedstock for the oxidation process.

Any blowing flux must be registered for use in production of oxidised bitumen. This will require the manufacturer to identify the blowing flux, its hazards and its risks. If appropriate, any risk transferred to the oxidised bitumen should be identified.

Blending oxidised bitumen with other bituminous substances will result in a preparation.

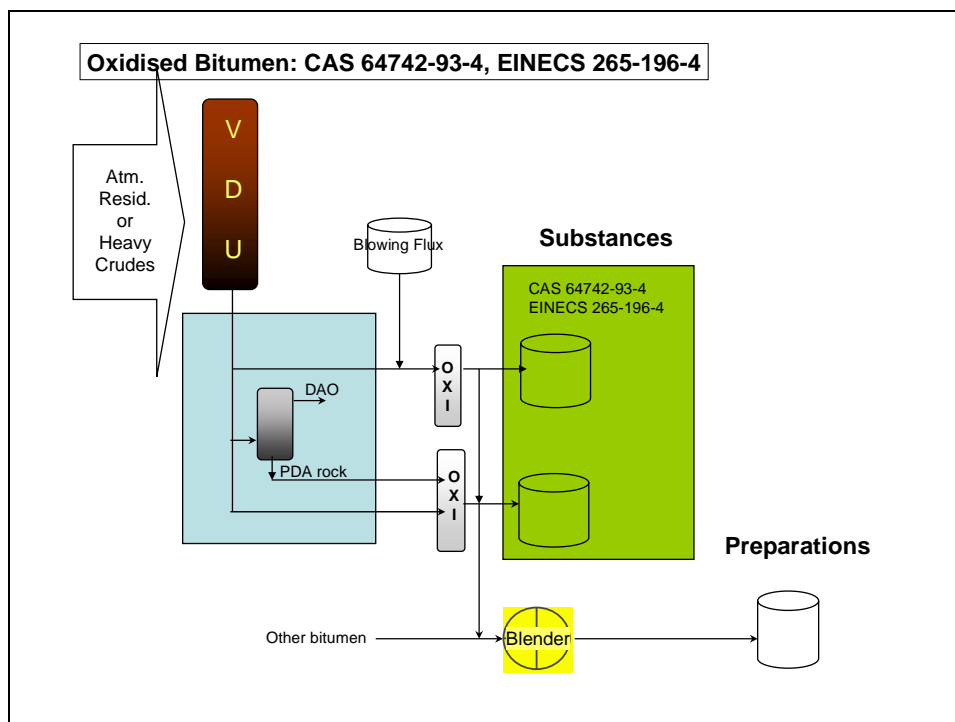


Figure 3

### 92062-05-0 - Residues (petroleum) thermal cracked vacuum

A complex combination of hydrocarbons obtained from vacuum distillation of products from thermal cracking process. It consists predominantly of hydrocarbons having carbon numbers predominantly greater than C34 and boiling above approximately 495°C.

#### Interpretation

See Figure 4. Blending with other bituminous substances will result in a preparation.

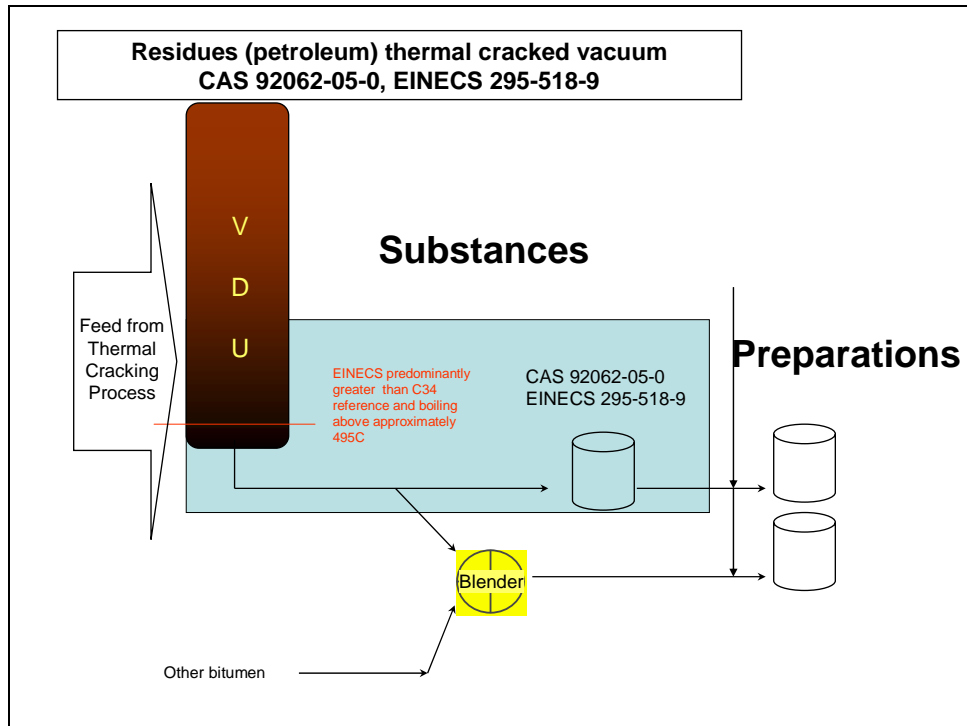


Figure 4

### Additional Bituminous Substances

The following substances are manufactured or used in limited quantities in Europe. As such little guidance is provided regarding interpretation of the substance definition for REACH. With the exception of asphaltenes, blending these bituminous substances with other bituminous substances would result in a preparation. As asphaltenes are derived from separation from either asphalt or vacuum residue, blending of asphaltenes back into the parent substance, either asphalt (8052-42-4) or vacuum residue (64741-56-6), would result in either the substance asphalt or vacuum residue. Blending of asphaltenes into either asphalt, oxidised (64742-93-4) or residues (petroleum) thermal cracked vacuum (92062-05-0) would result in preparations.

### 64742-85-4 - Residues (petroleum) hydrodesulphurised vacuum

A complex combination of hydrocarbons obtained by treating a vacuum residuum with hydrogen in the presence of a catalyst under conditions primarily to remove organic sulphur compounds. It consists of hydrocarbons having carbon numbers predominantly greater than C34 and a boiling above approximately 495°C (923°F).

**91995-23-2 - Asphaltenes (petroleum)**

A complex combination of hydrocarbons obtained as a complex solid black product by separation of petroleum residues by means of a special treatment of a light hydrocarbon cut. The carbon/hydrogen ratio is especially high. This product contains a low quantity of vanadium and nickel.

**94114-22-4 - Residues (petroleum), dewaxed heavy paraffinic vacuum**

A complex combination of hydrocarbons obtained as the residue from the molecular distillation of a dewaxed heavy paraffinic distillate. It consists of hydrocarbons having carbon numbers predominantly greater than C80 and boiling above 450°C (842°F).

**100684-39-7 - Residues (petroleum), distillation residue hydrogenation**

A complex combination of hydrocarbons obtained as a residue from the distillation of crude oil under vacuum. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C50 and boiling in the range above approximately 500°C (932°F).

**100684-40-0 - Residues (petroleum), vacuum distillation residue hydrogenation**

A complex combination of hydrocarbons obtained as residue from the distillation of crude oil under vacuum. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range above C50 and boiling in the range above approximately 495°C (923°F).