Updated Eurobitume Technical Guidance on Maximum Safe Handling Temperatures for Bitumen

For many years, bitumen manufacturers have specified maximum safe handling & storage temperatures for bitumen products, primarily to prevent the formation of flammable atmospheres in heated storage tanks. The maximum handling & storage temperatures vary according to bitumen grade, but the current recommended maximums for paving grade bitumen[1] and bitumen for industrial applications[2] are 200°C and 230°C respectively[3]. Eurobitume has recommended these maximum handling & storage temperatures to its members since at least 1997, and they have been published in a number of documents.

In some applications, downstream users employ working temperatures in excess of the recommended handling & storage maxima. Employers have a legal obligation to assess and control workplace HSE risks from exposure to chemicals and comply with workplace exposure limits. These employer obligations remain, but under REACH, chemical manufacturers are required to identify all HSE risks associated with their chemicals, at each stage of the supply chain. They are also required to communicate HSE information to downstream users, including specifying the conditions under which the chemical can be used safely.

Bitumen is generally handled hot, and temperature is a key determinant of the amount and composition of emissions. Research studies have shown that for application temperatures within the range recommended by Eurobitume, worker exposures are likely to be within regulatory limits and are unlikely to be hazardous to health. Some laboratory fume data generated at temperatures above these maximum recommended handling & storage temperatures, suggest that worker exposures are likely to be higher and that a health hazard cannot be precluded. However there is evidence to support that lab studies at high temperature do not correlate with real field exposure and no conclusions can be drawn without further investigations.

Eurobitume's position can be summarised as follows:

- Sufficient data are available to evaluate the HSE hazards and risks of emissions from hot bitumen, for temperatures below the recommended maximum values for paving grades i.e. 200°C, or the maximum temperature specified, whichever is the lower. It is expected that further data being generated on industrial grades will provide assurance on the HSE properties of emissions from hot industrial grade bitumens at temperatures up to 230°C.
- Based on current knowledge, there is a lack of data to assess fully the HSE hazards or risks for bitumen applications above the maximum recommended handling & storage temperatures.
- Eurobitume has no plans to commission additional health hazard studies, either below or above current recommended maximum temperatures. However, Eurobitume is monitoring additional studies underway at present and will carefully review and consider new information as it becomes available.

Under REACH a Downstream User (DU) can use a substance outside the conditions prescribed by the manufacturer. In such cases the DU will then assume responsibility for performing a chemical safety assessment to cover such uses, which will need to be registered with the European Chemical Agency (ECHA); a DU will need to develop exposure scenarios, and supporting exposure data, to cover his intended uses.

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1 As defined in EN12591 Bitumen and bituminous binders — Specifications for paving grade Bitumens, or products with comparable characteristics.

2 Bitumens complying with; EN 13304 Bitumen and Bituminous binders – Framework for the specifications of oxidised bitumen, and EN13305 Bitumen and bituminous binders. Framework of specification of hard industrial bitumens, or products with comparable characteristics.

3 IP Bitumen Safety code, part 11, 4th edition, http://www.energyinst.org.uk/content/files/bitumentables.pdf