Exemption guidance

Guidance on interpretation of "Relevant Liquid"

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Version 1

Radioactive Substances Act 1993
The Environmental Permitting (England and Wales) (Amendment) Regulations 2011

What is a relevant liquid?
The definition of relevant liquid is:

"relevant liquid" means a liquid which -

> *(a) is non-aqueous; or*
>
> *(b) is classified (or would be so classified in the absence of its radioactivity) under Council Regulation No. 1272/2008 as having any of the following hazard classes and hazard categories (as defined in that Regulation) -*
>
> > *(i) acute toxicity: categories 1, 2 or 3;*
> >
> > *(ii) skin corrosion/irritation: category 1 corrosive, sub-categories: 1A, 1B or 1C; or*
> >
> > *(iii) hazardous to the aquatic environment: acute category 1 or chronic categories 1 or 2.*

Therefore to determine if a liquid is a relevant liquid there are two considerations: (1) is the liquid a non-aqueous liquid and (2) does it have one of the specified hazard classes or categories.

What is a non aqueous liquid?
Non aqueous liquids are those where the primary constituent is not water. Another way of considering this is that water is not acting as the solvent. Non-aqueous liquids are usually organic liquids, e.g. oils and solvents but can also be inorganic e.g. mercury.

The presence of dissolved organic compounds in water does not mean that such a mixture can be classed as a non-aqueous liquid; water is acting as the solvent and the liquid is considered aqueous irrespective of the organic concentration.

Similarly, the presence of suspended hydrocarbons does not make a liquid a non-aqueous liquid. In this case water is still the primary constituent. We treat suspended hydrocarbons like any other suspended material and expect that all reasonably practicable means have been used to attempt to remove them prior to considering the status of the material.

Hazard categories
Hazard categories are assigned by the manufacturer of chemicals and will be indicated on the chemical packaging.

In the case of mixtures or solutions of hazardous substances, Council Regulation No. 1272/2008 sets out the procedure for determining the overall hazard category of the mixture. Of particular note is the use of "cut off" values, the text below is a reproduction from the Regulation and explains their use.

"Cut-off values indicate when the presence of a substance needs to be taken into account for the purposes of classification of a substance or a mixture containing that hazardous substance, whether as an identified impurity, additive, or individual constituent."

Cut off values may therefore be used as a screening method to determine whether or not a mixture may be a relevant liquid. The relevant cut-off values are reproduced in Table 1. If a hazardous substance is present at a concentration less than the cut off value then its presence does not make a mixture a relevant liquid. If the substance exceeds these concentrations then the mixture may be a relevant liquid and a fuller assessment needs to be undertaken.

Table 1 Cut off values that are relevant when determining if a mixture is a relevant liquid. Extracted and reproduced from Table 1.1 of Annex 1 of Regulation 1272/2008

Hazard Class	**Cut off value**
acute toxicity: categories 1, 2 or 3	0.1%
Skin corrosion/Irritation	1%
Hazardous to Aquatic Environment	
— Acute Category 1	0.1%
— Chronic Category 1	0.1%
— Chronic Category 2-4	1%

Treatment of relevant liquids and subsequent regulation

Relevant liquids are often treated to remove the hazardous component to enable *clean* water to be discharged to the water environment. Any operator carrying out such an operation should be aware that such treatment may generate radioactive waste, e.g. solid residues or aqueous waste, the disposal of which may require permitting.