

Exemption from Labelling as Flammable for Methylal Formulations

 **Univar**Solutions

Exemption from Labelling as Flammable for Methylal Formulations



Methylal is a **flammable liquid category 2** and it must be handled as such.



Specific compositions **do not need to be classified as flammable liquid** under CLP and transport regulations.



Nevertheless, **formulated Methylal in mixtures with polyols, silicones and other ingredients** of the formulation shows a **strongly reduced flammability**.



Under the terms of the CLP directive and transport regulations, liquids with a **flash point $\geq 35^{\circ}\text{C}$ need not to be classified in Flammability Category 3** if negative results are obtained in the sustained combustibility test.



THIS EXEMPTION COVERS THE FOLLOWING REGULATIONS

CLASSIFICATION & LABELLING OF CHEMICALS



CLP*

DANGEROUS GOODS TRANSPORT



ADR* (road)



IMDG* (sea)

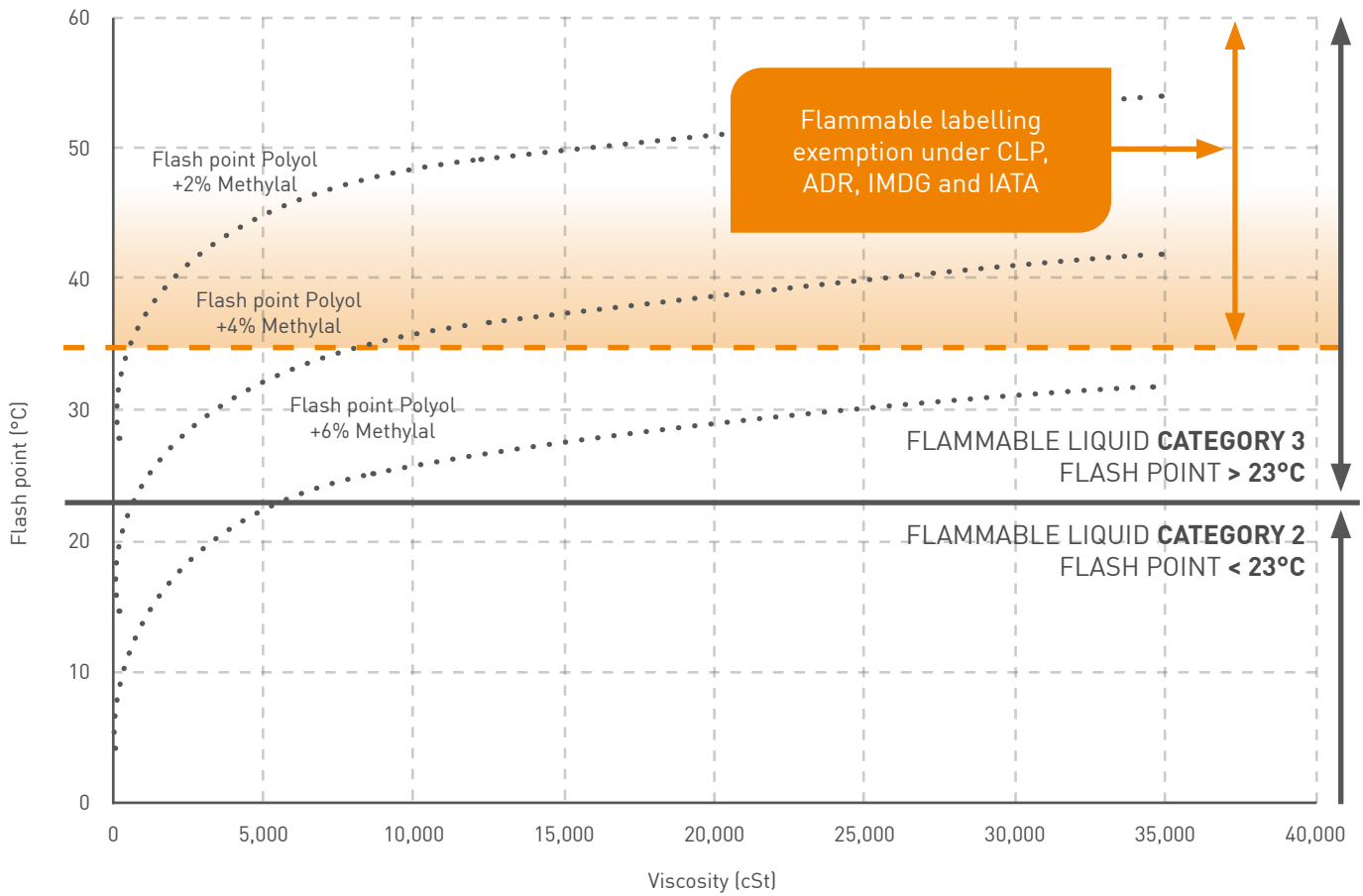


IATA* (air)

* Test L.2, Recommendations on the transport of dangerous goods, Manual of tests and criteria, 5th revised edition, United Nations

The flash point of binary mixtures polyol-Methylal is $\geq 35^{\circ}\text{C}$ depending on the percentage of Methylal and the viscosity of the polyol.

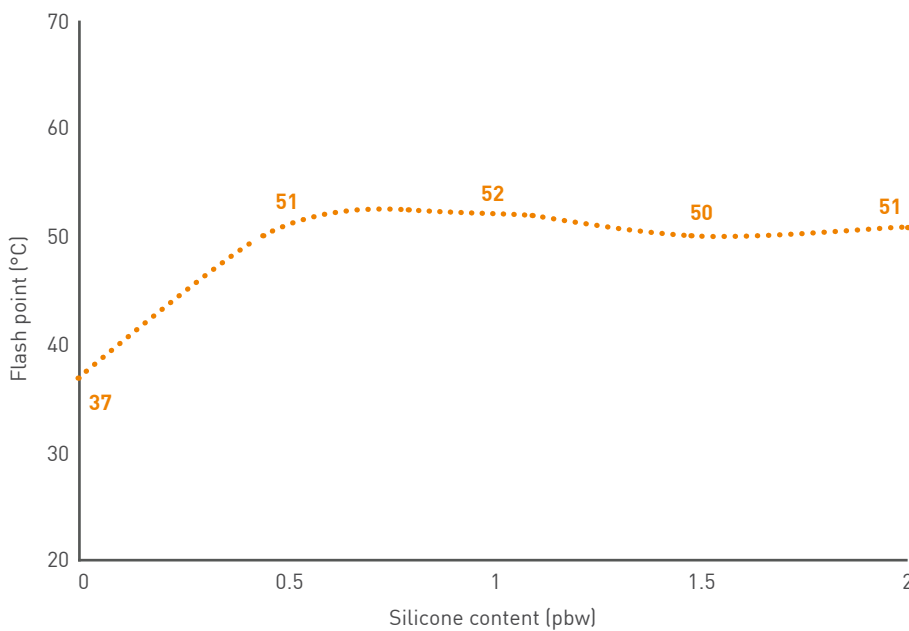
Flash Point of Binary Mixtures Polyol-Methylal



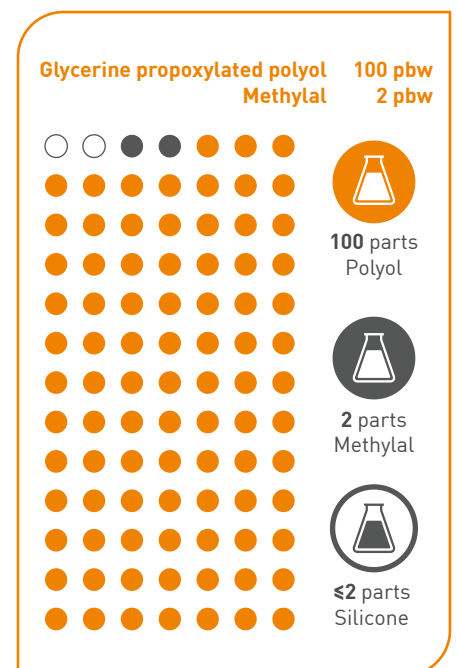
The higher the viscosity the higher the flash point as described in the above diagram.

The addition of silicones to binary mixtures polyol-Methylal significantly increases the flash point of the mixture as shown on the below diagram.

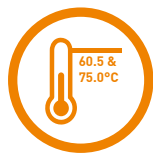
Sustained combustibility tests of blends polyols-Methylal



Polyol viscosity at 25 °C : 830-980 cSt



Mixtures of Methylal with a sorbitol-propoxylated polyol of high viscosity (35,000 mPa.s, OH 460-495) containing **higher percentage of Methylal** than that usually used in formulations do not sustain combustion as shown in the following table.



In the sustained combustibility tests performed according to test L.2, the samples are tested at 60.5 and 75.0 °C, and sustain combustion if:

- The test portion ignites while the **test flame is in the test position**, maintained for **15 seconds**, and
- Sustains combustion **for more than 15 seconds** after the test flame has been returned to the 'off' position



Sustained combustibility tests of blends polyols-Methylal

BLEND		TEMPERATURE (°C)	COMBUSTION TIME (s)	TEST RESULT	PRESSURE (mbar)
SORBITOL-PROPOXYLATED POLYOL 35,000 mPa.s, OH 460 - 495	METHYLAL				
92	8	60.5	Negative	Sample does not sustain combustion	1,012
		75.0	Negative		
90	10	60.5	Negative	Sample does not sustain combustion	1,010
		75.0	2		
86	14	60.5	4	Sample does not sustain combustion	1,010
		75.0	4		



Mixtures of **Cyclopentane** with polyol have always a **lower flash point** than with Methylal and sustain combustion with a much lower percentage of blowing agent.

As a conclusion, methylal is a flammable liquid category 2, but once it is blended with polyol, the mixture will not burn and is exempted of flammability labelling if its flash point is $\geq 35^{\circ}\text{C}$.



Contact:

For more information contact your local Univar Solutions representative or visit: **UnivarSolutions.com**