Justification for substance identity of formaldehyde, CAS 50-00-0

The REACH Consortium chose to register formaldehyde as solution, which is also the description in the CLP (EC Regulation 1272/2008, Annex VI) “formaldehyde ...%”. Another argument for this definition is that aqueous solutions of formaldehyde have been used as the test substance in most available toxicological and eco toxicological studies.

Pure formaldehyde is a colorless gas at ambient temperature, which polymerizes readily unless stored at temperatures between 100 and 150°C. Polymerization is accelerated by traces of polar impurities such as acids, alkalis, or water. As a consequence, anhydrous monomeric formaldehyde is not handled commercially.

Formaldehyde is commercially available primarily in the form of an aqueous (generally 30–60 wt.%) solution. Water is reported as an impurity so that the composition up to 100 % is covered, but water as such does not contribute to the hazard properties of the reported composition. Technical-grade formaldehyde solutions contain a small amount of methanol as a result of the incomplete methanol conversion during formaldehyde production. The amount of methanol present (up to 3 %) depends on the production process employed. A further impurity in formaldehyde aqueous solutions is formic acid formed from formaldehyde by the Cannizzaro reaction.

Source: Ullmann’s encyclopedia of industrial chemistry