



Clarification on VOCs

Ten years ago, virtually no one was talking about solvent-free or 100% solids coatings. Today they are a reality. For several months now, there has been much discussion in the market about solvent-based coatings and their applications. Here are some facts on the subject for you.

PROPOSED REGULATIONS

Environment Canada is proposing the regulation of VOCs. The stated purpose of these regulations is to reduce the emission of volatile organic compounds (COV in the French language) from architectural coatings.

DEFINITION

Environment Canada defines a volatile organic compound (VOC) as a chemical agent which reacts with other atmospheric pollutants and sunlight to form particulate matter and ozone. This combination can create smog in urban centres. Smog is a thick haze which is harmful to people's health.

THE DIFFERENCE BETWEEN SOLVENTS AND VOCs

While it appears obvious that a VOC is a solvent, a solvent is not necessarily a VOC. Please take note of this definition: for a component to be considered a VOC, it must be part of a chemical reaction leading to the formation of particulates or tropospheric ozone. If the compound degrades before reaction, it is not considered a VOC. It is therefore possible to find "non-VOC" coatings on the market even if they contain solvents. Consequently, it is entirely possible to use coatings identified as containing 0 g/L de COV, even though they possess nauseating or unpleasant odours.

TOXICITY

Common wisdom would have you believe that non-VOC products are automatically risk-free. It is again important to stress that the definition of a VOC does not take into account the toxicity of a material. A case in point is that dichloromethane (better known as methylene chloride) is not legally considered a VOC (0 g/L of VOC), but is still regarded as possibly carcinogenic to humans. Please note that this is part of the reason why it is likely to be banned

ODOUR

A product's odour has nothing to do with its toxicity. Many people sense that coatings which have a bad or strong smell are dangerous, while those which are odourless or faint-scented are harmless. For example, a two-component polyurethane which contains no solvents (and 0 g/L of VOC) is essentially odourless, but its isocyanate component ("hardener") is greatly toxic and dangerous to the uninformed user..

100% SOLIDS

100% solids products are generally considered to contain little or no solvents. This consideration notwithstanding, the coating is applied in liquid form and 100% of its components remain on the surface during solidification. While a coating identified as containing 100% solids may still be comprised of trace percentages of solvents, it may not be automatically assumed to contain 0 g/L of VOC. Additionally, the notion of 100% solids has nothing to do with the coating's toxicity. These "solid" components of the coating may be as toxic as the solvents used in typical coatings. Every formulation is therefore unique and must be utilized only after full understanding of the potential dangers associated with it.

In conclusion, it is extremely important to read the technical data sheets as well as the health and safety information of any coating product before using it. Forewarned is forearmed!

François Paquette, M. Sc.Chemist.