

May 1, 1989

TGG: JCL: MMG: AJO: RF

XF: _____

Mr. John Braddy
Petrofirm Inc.
5400 1st Coast Highway
Fernandina Beach, Florida 32034

VISTA

Dear John:

Below is a further explanation of the toxicity of Vista LPA Solvent and a comparison of the inhalation toxicity to several common chlorinated solvents.

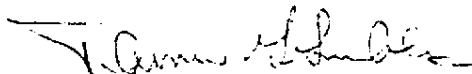
The MSDS contains a recommended TLV of 350 mg/m^3 , which based on a calculated molecular weight for LPA-210 is approximately 50 ppm. The limit of 350 mg/m^3 is from a NIOSH criteria document that dealt with various "refined petroleum solvents". In the case of kerosene like materials, the 350 mg/m^3 limit was set to avoid inhalation of hydrocarbon mists that could accumulate in the lungs and cause pneumonia. In other words a mist, not a vapor, is the concern as to an inhalation effect. The document also notes that this is a conservative value. Actual testing for inhalation effects of LPA, the solvent from which LPA-210 is made, resulted in no observed toxic effects in rats exposed to 24.1 mg/l for one hour. This is equivalent to approximately 3,470 ppm, based on a molecular weight of 170 for LPA.

It is difficult to find equivalent data for chlorinated hydrocarbons. Most of the inhalation data is based on testing for different exposure periods. I've attached a brief summary of two common chlorinated solvents. It should be noted that these solvents exhibit toxic effects via inhalation, while testing of LPA has shown little or no toxic effect via the inhalation route.

LPA Solvents exhibit very low skin and eye irritation potential and dermal and oral toxicity is very low. Chlorinated hydrocarbon solvents, in general, are highly irritating, and can be absorbed through the skin in toxic amounts and cause toxic effects by inhalation or ingestion.

I hope this additional information helps you compare Vista's LPA Solvents and other materials you may use. Please call me at 713-531-3445 if you need further information.

Sincerely,



Thomas G. Grumbles, C.I.H.
Environmental Quality Manager

dlj

Attachment

cc: Chris Pierson

VVV 000022465

1.1.1 - Trichloroethane

- Considered lowest in toxicity of chlorinated hydrocarbons
- TLV 350 ppm
- Oral LD₅₀ 10,300 mg/kg
- Inhalation: lethal at 14,000 ppm for short-duration 900-1000 ppm causes eye irritation and central nervous system effects in humans

Carbon Tetrachloride

- TLV 5.0 ppm (can be absorbed through the skin)
- Oral LD₅₀ 2800 mg/kg
- Inhalation LC₅₀ 9526 ppm (8-hour exposure) human effects (central nervous system) seen at 20 ppm. Deaths have occurred at 1,000 ppm.
- Toxic by skin absorption and ingestion

Mg/M³ to ppm Conversion Formula

$$\text{ppm} = \frac{\text{mg/m}^3 \times 24.5}{\text{molecular weight}}$$