Monsanto
COMPANY

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PYDRAUL 135

Toxicity and Safe Handling Information

This hydraulic fluid consists of chlorinated biphenyl, a phosphate ester, and a high viscosity selected petroleum fraction of low volatility. Our label for this product contains the following precautionary statement:

> CAUTION!
> Contains Chlorinated Hydrocarbons.
>
> Avoid prolonged breathing of vapors or mists.
> Avoid contact with eyes or prolonged contact with skin.
> If skin contact occurs, remove by washing with soap and water. Following eye contact flush with water.
> If clothing becomes soaked with fluid, launder before wearing again.

Acute (range-finding) toxicity studies have shown that the oral LD_{50} of Pydraul 135 when administered to rats is approximately 4,615 milligrams per kilogram of body weight (limits - 4,060 to 5,260 mg/kg). Application undiluted to the skin of rabbits results in a minimum lethal dose of 2,510 to 3,980 mg/kg. In skin and eye irritation potential studies with rabbits, the fluid was classed as non-irritant (score of 0.0/8.0) to skin and "slight irritant" to eyes (maximum score of 8.3/110 one hour after instillation in rabbits eyes). Rats survived (with no effects) a 6-hour exposure to an atmosphere approximately saturated with vapors at ambient temperature.

Experience with this and other members of the Pydraul series indicates that these fluids should be used in systems as free from leaks as possible. This is particularly important if the fluid is at elevated temperature where components of the formulation may be volatilized into the workroom. At ambient temperature the vapor pressures are such that there are no significant vapor inhalation hazards.

If there is accidental spraying of Pydraul 135 into molten metal or on heated surfaces, the fluid will be vaporized and/or decomposed depending on the temperature of the metal. About 15 years ago we had rather extensive tests run at

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Kettering Laboratories at the University of Cincinnati where a Pydraul fluid was sprayed on metal heated to 1,050°F and 1,250°F. The vaporized fluid and decomposition products were discharged into suitable animal exposure chambers. Similar experiments were run with a tricresyl phosphate hydraulic fluid and a petroleum based fluid. The general conclusion reached was that there was little difference, from a practical standpoint, in the toxicity of the three products as demonstrated in the experiments.

If a phosphate ester fluid or Pydraul is sprayed into molten metal as a result of the rupture of a hydraulic line on a diecasting machine, a cloud of acrid vapor and smoke will develop. This will consist principally of soot, CO, CO_2, water, aldehydes and cresols. In the case of Pydraul, there will be in addition, hydrochloric acid in the smoke due to the decomposition of the chlorinated compound. This may make the "cloud" somewhat more acrid or irritating but does not significantly increase the toxicity.

Where the Pydrauls have been involved in such accidents, there have not been cases where employees could not safely shut down equipment and leave the area. As with a petroleum or phosphate based fluid, it might or might not be necessary to wear respiratory protection to re-enter the area until it could be ventilated. This would depend, of course, on the amount offluid that was sprayed or leaked onto the molten metal or hot surface.

Our label recommends avoidance of repeated and prolonged skin contact. This precaution is indicated since Pydraul 135 is an excellent solvent for the natural fats and oils on the skin. When these are removed the skin may tend to dry and crack. The fluid works much like many common paint thinners in this respect.

R. Emmet Kelly, M.D.
Medical Director

August 2, 1966