PYDRAUL 625

TOXICITY AND SAFE HANDLING INFORMATION

Animal toxicity studies with Pydraul 625 have indicated an approximate oral lethal dose in rats of 34.3 grams per kilogram of body weight. In rabbits, the oral minimum lethal dose was between 4.25 and 5.0 grams per kilogram. In each case, the undiluted material was introduced into the animal stomach by means of a rubber tube catheter. The apparent greater sensitivity or susceptibility of the rabbits is not uncommon with industrial chemicals similar to hydraulic fluids.

When applied undiluted to the unbroken skin of rabbits and allowed to remain for twenty-four hours, the local effect was classified as "mild irritation." Similarly, 0.1 milliliter of undiluted sample instilled in the eyes of rabbits resulted in only a mild effect. The degree of irritation in each case was less than that which develops when a 10% solution of toilet soap is tested with similar methods.

In vapor phase inhalation experiments, rats survived with only signs of slight discomfort a six-hour exposure in an atmosphere saturated with Pydraul 625 vapors. Because of the low volatility of the fluid, high concentrations of vapor are not evolved under ambient conditions. In experiments to determine the acute toxicity of decomposition products of Pydraul 625, the fluid was dropped onto a nonporous surface heated to 2000°F. The thermal decomposition products were passed into a suitable animal inhalation chamber. Rats survived a fifteen-minute exposure to decomposition products and fluid mists where the concentration was sufficient to obscure the animals even at the front of the exposure chamber. The animals exhibited considerable discomfort, copious nasal discharge with lacrimation and reduced activity. In the following fourteen-day observation period, the animals returned rapidly to normal.

In a second experiment, rats survived a one-hour exposure similar to the conditions described above. In this case, however, the animals were in a semicomatose state when removed from the chamber

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and the signs and symptoms mentioned above were considerably more pronounced. In a third experiment, rats were exposed to lower concentrations for one hour, three days per week, for two weeks. The concentration of decomposition products, mist and vapors was such as to be clearly evident by visual observation but not sufficient to obscure the animals. No deaths occurred in the eight animals exposed during the experiment or a fourteen-day post-exposure observation period. The "fog" produced a moderate degree of irritation during each exposure period which appeared to have cleared up by the time of the next exposure two days later.

CONCLUSIONS

On the basis of the animal toxicity data and manufacturing and use experience, we conclude that Pydraul 625 is not seriously toxic from the standpoint of accidental single ingestion or massive body surface exposure. The vapors at ambient temperatures do not constitute a vapor inhalation hazard. If the fluid is accidentally sprayed or splashed on hot surfaces such as molten metal or used in equipment at elevated temperatures, seriously toxic vapor concentrations would be so discomfiting, unpleasant, and perhaps unbearable, that workmen would not voluntarily expose themselves to such concentrations. In general, it may be stated that the toxicity and hazards are comparable to those of petroleum-based hydraulic fluids as far as short-term massive exposures are concerned.

Although the eye irritation studies with animals indicate a low order of irritation, human experience indicates that when Pydraul 625 is accidentally splashed or sprayed into the eyes, the fluid causes smarting and pain out of proportion to the effect on eye tissue. There is no evidence of significant tissue damage or any danger of permanent loss of visual ability. In treating such accidents, copious and prolonged washing of the eyes is recommended. To relieve the irritation, physicians have used 1% Pontocaine solution as well as ophthalmic cortisone acetate solution.

We have not experienced any injuries to workers during the manufacture of Pydraul 625 nor have any users reported any difficulties other than the eye irritation mentioned above.

We advise in safe handling that prolonged and repeated skin contact be avoided because of the possible solvent action of Pydraul 625 for natural skin oils--similar to the effect of paint removers. If prolonged exposure to high vapor or decomposition products concentrations is necessary, workmen must wear appropriate respiratory protective devices. For short periods such as might occur during the shutdown of machinery following breakdown, no such protection is necessary.

MEDICAL DEPARTMENT

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