

April 9, 1968

Mr. James Armstrong
Kaiser Aluminum & Chemical Company
Trentwood Works
Spokane, Washington 99210

Dear Mr. Armstrong:

Mr. Pogue of our Seattle office has asked me to forward toxicity and safe handling information relative to our fire-resistant hydraulic fluids, Pydraul 312 and Pydraul A-200.

The oral toxicity of Pydraul 312 shows an LD₅₀ to rats of 6500 mg/kg and it is classified as "practically non-toxic" from the acute oral point of view.

When applied to the skin undiluted and allowed to remain overnight, a barely perceptible redness occurred, giving a maximum score of 1.3/8.0, which was classed as a slight irritant. The material proved capable of being absorbed through the skin in high doses when allowed to remain on the rabbit under a cuff. The minimum lethal dose was somewhere over 2000 and under 3000 mg/kg. This would fall into the "slightly toxic" range.

The material is a slight eye irritant when applied undiluted to the rabbits' eyes and there was mild discomfort and slight redness. The maximum score was 13/110 and the eye had returned to normal within three days.

Rats survived six-hour inhalation exposure to the vapors evolved at ambient temperatures following the passage of air through the material. No systemic effects were noted.

Animal toxicity studies with Pydraul A-200 have indicated that the oral lethal dose (LD₅₀) to rats is 10,500 milligrams per kilogram. The lethal dose when the material was applied undiluted to the unbroken skin of rabbits is approximately 1050 milligrams per kilogram. The skin and eye irritation and vapor inhalation tests results were comparable to the data for Pydraul 312.

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We conclude from the above that accidental ingestion on the part of humans is not a particular hazard in view of the high oral lethal dose in rats. Similarly, single massive skin exposures should not be immediately hazardous. The lethal dose obtained in skin penetration studies is such, however, that prolonged and repeated skin contact should be avoided because of possible systemic effects. In addition, prolonged and repeated skin contact may lead to skin irritation.

We also feel that vapor inhalation should be avoided when the fluid is heated to elevated temperatures. Such exposure again relates to prolonged or repeated exposures rather than short-term massive or acute exposures. In the case of the latter, workmen would not voluntarily expose themselves to concentrations that are hazardous because of irritation of the respiratory tract.

I have enclosed a copy of a summary of our interpretation of the data for Pydraul 312. The information applies similarly to Pydraul A-200.

If I can be of any further help, please let me know.

Sincerely,

R. Emmet Kelly, M.D.
Medical Director

REK:cjs

CC: D. R. Fogue - Seattle
BCC: M. T. Johnson
~~Enclosure~~

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