

JW

June 3, 1957

Mr. Allen D. Brandt
Chief Ind. Hyg. Engineer
Bethlehem Steel Company, Inc.
Bethlehem, Pennsylvania

Dear Al:

Thanks for your letter of May 31 requesting toxicity data on
Hydral AC.

The range finding toxicity data indicates that rats survived dosages of 52.0 grams per kilogram of body weight. This indicates that the material is "practically innocuous" when fed orally to this specie. The Minimum Lethal Oral Dose for rabbits was 3.5 to 4.5 grams per kilogram and following skin absorption in rabbits the lethal dose was 4 to 5 grams per kilogram. Obviously, the rabbit is a much more sensitive specie to this fluid.

Skin and eye irritation studies with animals indicates that 24 hour contact resulted in less irritation than results when a 10 per cent soap solution is tested similarly.

Rats survived 6 hours exposure to an atmosphere saturated with vapors of the fluid. Vapors were introduced into a suitable animal chamber by bubbling compressed air through an orifice immersed in the liquid. The vapor-laden air stream was then passed through an impinger flask to capture droplets or aerosol and to allow only vapors to pass into the chamber. The animals were not seriously affected by the exposure; breathing remained regular although there was slight irritation of the respiratory tract as evidenced by salivation and slightly reddened mucosa. The exposure caused only a slight degree of lacrimation.

We interpret the above animal toxicity data as indicating that the fluid possesses a very low order of toxicity. Practical experience with Hydral AC and other somewhat similar fluids have shown, however, that accidental contact with the eyes of workmen causes pain out of proportion to the degree of irritation obtained in animals. This has occurred where droplets of the fluid have been splashed in the eyes or where workmen might have the fluid on their hands and wipe their eyes. In no case has there been any damage to eye tissues or impairment of vision.

The second practical consideration refers to a suggestion that workmen avoid needless prolonged skin contact principally because the fluid has an excellent solvent action which can defat the skin and

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lead to possible irritation.

Although I am not at liberty to disclose the components of Pydraul AG, I can tell you that the vapor pressure is extremely low with boiling points at 760 mm something over 350°O. I think it highly improbable that any significant concentrations of fluid would thus be picked up by the compressed air and reach workmen using air masks connected to the compressed air line.

We would not hesitate to use the fluid in compressors within our company where air masks might be connected to the compressed air lines intended primarily for other uses. We have indicated this thought in correspondence with other potential users and presumably there are a number of applications throughout the country where the fluid is now being used and as described in your letter.

Enclosed is our Technical Bulletin ODB-56-27 on Pydraul AG; I hope you will find it helpful.

If I can be of any further help or add to the above information, please let me know.

Sincerely yours,

Elmer P. Wheeler
Assistant Director
Medical Department

EPW:dh
Enclosure

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