

January 17, 1966

Mr. Dwelt E. McDole, Staff Engineer
Fabrication Engineering
Kaiser Aluminum and Chemical Company
Oakland, California

*Toxicity and
Safe Handling
of Pydraul 312*

Dear Mr. McDole:

I have been asked to forward toxicity information on
the new member of our Pydraul series, Pydraul 312.

hydraulic fluid
~~This new member of our Pydraul series~~ 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.

Experience with this and other members of the Pydraul
series indicate 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 312 into molten
metal or on heated surfaces, the fluid will be vaporized
and/or decomposed depending on the temperature of the metal.

DSW 018607

Mr. Ewell E. McDole
January 17, 1966
Page 2

About 15 years ago we had rather extensive tests run at Kettering Laboratories at the University of Cincinnati where a Pydraul fluid was sprayed on metal heated to 1050°F and 1250°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, CO₂, 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 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 of fluid 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 312 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.

If I can be of any additional help, please do not hesitate to let me know.

Very truly yours,

April 3, 1967

R. Emmet Kelly, M.D.
Medical Department

RZK:mjb

cc: D. R. Pogue - Monsanto, Los Angeles

bcc: Dale Smith

DSW 018608