INTRODUCTION

Pydraul 280 was developed as a fire resistant hydraulic fluid, having a viscosity intermediate to Pydraul A-200 and Pydraul 625, to meet the requirement of a mining application for British Petroleum in Germany. This formulation is actually a mixture of Pydraul A-200 (56.2% by weight) and Pydraul 625 (43.8% by weight) and after the initial sales requirements have been produced, the blending process will be amended by eliminating Aroclor 1242 from the Pydraul 280 formulation. A minimum of six (6) months will be required to schedule this additional laboratory work into the Functional Fluids program.

SYNOPSIS OF PROCESS

Pydraul 280 is prepared by thoroughly mixing small amounts of Santolube 70 and Santolube 393 into a specified mixture of Aroclors, containing tricresyl phosphate. A dye, duPont Oil Blue A, is added to give the characteristic Pydraul color and Dow Corning 200 fluid is added to defoam the formulation. The resulting fluid is filtered into containers.

BILL OF MATERIALS

The process weights for 100 pounds of Pydraul 280 are as follows:

Aroclor 1260	- 21.9 pounds
Aroclor 1248	- 37.1 pounds
Aroclor 1242	- 18.5 pounds
Tricresyl Phosphate	- 21.85 pounds
Santolube 70	- 0.40 pounds
Santolube 393	- 0.25 pounds
duPont Oil Blue A	- 0.0007 pounds
Dow Corning 200 Fluid	- 0.002 pounds

PROCESS IN DETAIL

To a clean, dry vessel, equipped with an agitator, charge 21.9 lbs. of Aroclor 1260, 37.1 lbs. of Aroclor 1248, 18.5 lbs. of Aroclor 1242 and 21.85 lbs. of tricresyl phosphate. Stir and add 0.40 lbs. of Santolube 70 and 0.25 lbs. of Santolube 393. Santolube 70 is a viscous liquid and may be warmed to facilitate handling but in no instance should the temperature of this additive exceed 100°C. Add 0.0007 lbs. of duPont Oil Blue A and 0.002 lbs. of Dow Corning 200 Fluid (350 cs at 25°C) and stir the blend for 30 minutes to insure complete mixing. The final fluid is filtered through a sock or a string wound filter into drums. Filter equipment utilizing Dicalite or other filter aids cannot be used in this operation because these media remove the silicone defoamer and certain earths will also adsorb the blue dye. A one pound sample of the finished fluid should be submitted for analysis.

MATERIAL SPECIFICATIONS

Raw materials used in this formulation are commercially available products and all of the components are produced by Monsanto, except the duPont dye and the Dow Corning fluid. The tricresyl phosphate must meet the specifications for A-grade material. The Aroclors, Santolube 70 and Santolube 393 must pass Monsanto's finished goods specifications. The duPont Oil Blue A should meet normal purchasing requirements and the Dow Corning 200 silicone, 350 cs at 25°C grade, is accepted on manufacturer's analysis.

No formal specifications have been established for Pydraul 280. Typical properties are as follows:

Acidity	- 0.65
Moisture	- 0.02
Pour Point	- 15°F
Flash Point	- 405°F
Viscosity	
at 100°F	- 59.80 cs
at 210°F	- 4.02 cs
Specific Gravity at 25/25°C	- 1.3949

TOXICITY AND HAZARDS

The raw materials and finished formulation should be handled with normal care. Repeated or continuous skin contact should be avoided and inhalation of vapors at elevated temperatures should be prevented. The formulation is only mildly irritating to the eyes (but can cause pain) and like any synthetic fluid, it exerts a solvent action on the skin. Eye irritation studies showed it to be a mild irritant with no permanent damage to the tissue.

STREAM POLLUTION

No waste streams are discharged from this process.

J. D. Sullivan

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Manager of Research
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Date of Final Approval _____