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CHEMICALS — PLASTICS

PYDRAUL AC

FIRE-RESISTANT COMPRESSOR LUBRICANT

Technical Bulletin ODB-56-27, August, 1956

Development Department, Organic Chemicals Division
Monsanto Chemical Company, St. Louis 1, Missouri

Pydraul* AC is a thoroughly proven synthetic lubricant designed specifically to minimize two of the major problems associated with air compressor cylinder lubrication:

1) Air compressor explosions and receiver fires

2) Compressor maintenance due to deposit formation on exhaust valves and air system components

Fires and explosions in air compressors and compressed air systems are not uncommon and can be very destructive to property and hazardous to personnel. Numerous theories have been proposed to explain the origin of these occurrences but there is still a wide divergence of opinion. On one point, however, there is general agreement-that the combustible films or mists of the petroleum oil lubricant or its residues are directly involved.

It is obvious that if such combustible materials could be removed from the system, fires and explosions could be eliminated. Substitution of a Pydraul fire-resistant lubricant for petroleum oil in air compressor lubrication will thus drastically reduce explosion hazard.

Pydraul lubricants are wholly synthetic products which have been widely used in diverse industrial applications for a number of years. Their high degree of fire-resistance has been conclusively demonstrated in actual use as well as in numerous laboratory flammability tests.

*Pydraul: Reg. U.S. Pat. Off

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BROAD ACCEPTANCE--WIDE USAGE

The Pydraul fluids have been used for periods ranging up to five years as air compressor lubricants and are now successfully lubricating many hundreds of compressors of numerous types and sizes produced by most of the major compressor manufacturers including:

Chicago Pneumatic Tool Company
Clark Brothers Company
Cooper-Bessemer Corporation
Gardner-Denver Company
Ingersoll-Rand Company
Joy Manufacturing Company
Norwalk Company, Inc.
Worthington Corporation

REDUCED MAINTENANCE

Without exception the Pydraul lubricants have proved to be outstanding in air compressor service. Life of piston rings, cylinders, and valves has been at least equal to--often better than--that obtained with the use of premium quality petroleum lubricants. The carbon deposits frequently found on exhaust valves and air system piping are significantly reduced when Pydraul lubricants are used. Pydraul AC, which was designed specifically as a fire-resistant air compressor lubricant, is particularly outstanding in this regard. This reduction in exhaust valve and air system deposits means a real saving in compressor maintenance costs.

EASY TO USE

Conversion of compressors from petroleum to Pydraul lubricants is quite simple. For best results several points require attention. Since these fluids are excellent solvents for many petroleum lubricant residues, all inter-stage equipment should be completely cleaned to prevent loosened deposits from passing into succeeding stages and causing malfunction or equipment damage. These fluids also soften or lift many paints and if interior surfaces which will be contacted by the lubricant are painted, this paint should be removed prior to installation.

On compressors which are splash-lubricated from a crankcase, the above clean-up procedure is the only conversion change required.

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If a separate force feed cylinder lubricator of the water/glycerine-filled sight glass type is used, the lubricator must be modified. The Pydraul lubricants are heavier than water or glycerine and thus will not rise through these standard sight glass liquids. Fluorochemical 101, a clear liquid supplied by Minnesota Mining & Manufacturing Company, has a higher density than the Pydraul lubricants and has proved to be a completely satisfactory sight glass liquid for use with these lubricants. Alternately, a simple metal bobber can be obtained for most of these lubricators. This is installed in the sight glass after draining the sight glass liquid and removing the guide wire. Operation of the lubricator is then indicated by movement of the bobber with each stroke of the pump plunger. Bobbers are available for either the McCord and Manzell lubricators as McCord Part No. A25849 or Manzell Part No. 82-1021-B. Modification of the Madison-Kipp lubricator requires replacement of the entire sight glass with their No. C-CV-300 oil feed indicator.

Lubricators of the vacuum sight feed type can be used without alteration and have proved very satisfactory.

USE RATE

Field experience has proved that the required lubrication rate with the Pydraul lubricants approximates closely that of the normal petroleum oils. On an initial installation it is well to start with a somewhat increased lubricant feed rate and reduce in successive increments until inspection of cylinder walls and valves indicates the proper degree of wetting by the lubricant.

SAFE TO HANDLE

Pydraul AC is safe to use in this application since its toxicity is of a very low order. Repeated or prolonged skin contact should be avoided, however. Accidental contact with the eyes will result in moderate to severe pain and irritation but no permanent effects. In such an instance copious and prolonged washing of the eyes is recommended. To relieve irritation physicians have used 1% pontocaine solution as well as ophthalmic cortisone acetate solution.

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TYPICAL PROPERTIES OF PYDRAUL AC

Viscosity (SUS)	
50°F.	15,000
75°F.	1,650
100°F.	410
130°F.	127
210°F.	43
Pour Point, °F.	20
Neutralization Number	0.05
Specific Gravity 60°/60°F.	1.35
Autogenous Ignition Temperature	1,100°F.
Solubility of water in Pydraul AC	
at 75°F.	0.1%
at 210°F.	0.4%
Solubility of Pydraul AC in water	Negligible

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For additional information and samples write Monsanto Chemical Company, Organic Chemicals Division, Development Department, 800 N. 12th Boulevard, St. Louis 1, Missouri.

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JBD:1000-856

Printed in U.S.A.

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