

TECHNICAL BULLETIN ON MILITEC-1 LUBRICATION IN A FLUID DRIVE FOR A COAL BELT

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This report was written from an interview with the Maintenance Supervisor of a major power plant in the State of Maryland.

Background:

The fluid drive is located between a motor and a gear box and, acting as a transmission, provides gear changes to accommodate the changing loads on the coal belt. An unloader moves the coal from the delivery vessel onto the coal belt. The coal belt, in turn, moves the coal to the coal pile. The unloader was rebuilt by the plant maintenance staff and was modified to move more coal onto the belt at one time. This put a heavier load on the fluid drive. In anticipation of problems with the fluid drive, the plant ordered a rebuilding kit (cost was \$5,000) but there was a six-week lead time. To avoid a breakdown of the fluid drive while the kit was on order, the maintenance staff rebuilt the fluid drive using available spare parts.

Problem:

After 2 weeks of uneventful operation of the fluid drive, the operator noticed an oil leak from it and found that it was running extremely hot. The oil used was Exxon H68. The leak appeared due to the oil losing viscosity from the heat (the oil was described as acting like water it was so thin). To avoid a shutdown, the Maintenance Supervisor instructed the operator to keep filling the fluid drive as it leaked in order to keep the level up. However, the fluid drive continued to operate at a very high temperature and this solution could only be very temporary.

Solution:

The Maintenance Supervisor brought a 16-ounce bottle of Militec-1 to the scene and instructed the operator to add 8 ounces when the oil level was low. After doing so, the operator noticed that the temperature of the fluid drive was dropping but the oil continued to leak. The Maintenance Supervisor then told the operator to add the remaining 8 ounces of Militec-1. After only a few minutes, the temperature was back to normal and the oil stopped leaking. The effect of the Militec-1 was not only immediate. More than 5 weeks later, without any further application of Militec-1, the fluid drive was still operating without overheating and no repair was necessary. The rebuilding kit arrived and was put in storage.

Ramification:

Without the Militec-1, the fluid drive would not have lasted at that high temperature. Another temporary rebuild would have been needed which would have taken 2-days to complete, and would have provided no improvement over the earlier rebuild. If the rail cars delivering the coal could not have been unloaded, there would have been a very high storage cost for the coal sitting in the rail cars. There was also the risk that the fluid drive could not be operational enough to maintain the coal supply until delivery of the rebuilding kit. This could have resulted in a very expensive shutdown of the two coal-fired generating units for one or more days. The plant had been using Militec-1 in a variety of equipment for about one year. As a result of the experience with the fluid drive, Militec-1 applications are to expand.