

TECHNICAL BULLETIN ON MILITEC-1 LUBRICATION IN LARGE AIR CONDITIONING SYSTEMS

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The General Foreman, Operations, Maintenance & Facilities of a regional office of a federal agency has provided information on the use of Militec-1 in their large air conditioning systems used for cooling computer rooms. He also convinced several other federal agencies to use Militec-1 in such systems of theirs. These agencies have a common contractor that provides maintenance services for these systems and another contractor that collects data on their operation, conditions under which the systems operate and their energy consumption.

These systems use 100-ton air conditioning units operated year-round (as required for computer room cooling). Of a total population of 100 units, the number of units treated with Militec-1 is 50. The Militec-1 was installed in the compressor units at the time of their annual preventive maintenance teardown. This was in early April, 1994. 24 ounces of Militec-1 were added to the 150 SG Sun Oil primary lubricant which is added once each year. The oil was pumped into the compressors. These are reciprocating, enclosed semi-hermetic compressors that use R22. Through the summer season, the 50 units were monitored along with the 50 untreated units. Comparisons were also made with the year earlier with attention to comparative degree days. The units operate at full load about 16 hours per day and operate 24 hours per day, 365 days per year.

The contractor that monitors the equipment and collects data on every aspect of maintenance as well as on many variables that affect the equipment provided a report on the data in September, 1994. At full load, the historical data showed a range of current draw (in amps) of high 180s to low 190s. This year, with Militec-1, the range was high 170s to low 180s. This savings of about 10 amps amounts to 1/3 to 1/2 kilowatt. The contractor calculated that the average savings for each unit was \$8.20 per day. For 50 units, the savings totaled \$410 per day. The cost of the Militec-1 was about \$1,400. The Militec-1 was paid for by savings in the first 4 days. The newer units (less than 12 years old) and the non-Trane units showed a savings of slightly less than 1/3 kilowatt on average, while the older units and the Trane units (the large majority) showed a savings of about 1/2 kilowatt. The rest of the summer months, Militec-1 was providing very significant energy savings. This benefit is only one of many that include lower maintenance cost and longer equipment life.

A report on Militec-1 in air conditioners has also come in from a food processing company in Mississippi. They ran a 2-year test on Militec-1 in 4 of their 25 air conditioners. These four were one 10-ton Lennox, two 15-ton Tranes, and one 20-ton Trane. About 1-2 ounces of Militec-1 were added to each compressor. A 2-day baseline was established measuring amps and ambient temperature prior to the Militec-1 installation. A day after the Militec-1 was installed, the same climatic conditions existed and the energy savings ranged from 6-10%. While the company did not attempt to measure energy savings longitudinally, they did monitor reliability. They usually experience 3 to 5 compressor failures per year, and this was the case in 1993 and 1994. However, the four units treated with Militec-1 required no maintenance in 1993 and none yet in 1994.