



## Almagard® Vari-Purpose Lubricant (3751)

*Portvale Sugar Factory – Blowers, St. James, Barbados*

*Cooper Split Bearings on Unigrator*

- Reduced operating temperature of bearings by approximately 40 degrees Celsius
- Experienced no more melting or grease dripping out from the bearings
- Reduced greasing intervals from a minimum of three times daily to a couple of shots weekly

### **By the Numbers**

The Portvale Sugar Factory, owned by Barbados Agricultural Management Company Ltd., has been in business since 1982 and has been an LE customer since 2007. It is located at Blowers in the Parish of St. James and is currently the only operating sugar factory on the island. It has a capacity of 112 tonnes of canes per hour (2,688 tonnes of canes per day), producing approximately 240 tonnes of sugar per day. The sugar is manufactured for both domestic and overseas markets.

### **Application**

The Unigrator is cane preparation equipment with the main function of exposing the sucrose bearing cells of the sugar cane by shredding it into small pieces. It is driven by two 300-hp, 740-rpm induction motors that are directly coupled at the ends of shaft. The rotating element of the Unigrator is supported on two Cooper O2 B 700 (EX & GR) split bearings.

### **Challenge**

A leading competitive NLGI grade 2 grease was being used and was causing overheating of the bearings to a point where the bearings had to be greased at regular intervals and cooled by external means just to stabilize the temperature. This high temperature in excess of 90 degrees Celsius was causing the grease to melt and drip



out of the bearings, which exacerbated the problem and resulted in the destruction (burning) of one of the bearings.

### **LE Solution**

LE representative Michael Tang had previously recommended LE's Almagard® Vari-Purpose Lubricant (3751) for use in other areas of the sugar factory, and the factory had already been experiencing good results with this NLGI 1 grease. They decided to try Almagard 3751 in their most critical area after losing a bearing during the first week of the 2014 sugar crop. The bearing was lost mainly because of high temperatures in excess of 90 degrees Celsius.

Almagard 3751 withstands pressure, reduces wear and is recommended for extended service applications. It is extremely tacky and will not wash off, pound out, or melt and run – even in severe conditions. This was exactly what the Cooper bearings needed because they are slow moving, heavily loaded and under extreme pressure.



*The Unigrator rotating element removed for servicing*



*The factory was regreasing the Unigrator bearings at least three times per day prior to switching to LE's Almagard 3751 grease.*

### **Results**

Since they started using Almagard 3751 in April 2014, the factory has not lost another Cooper 02 B 700 GR split bearing, which cost 14,172 Bds (USD 7,086). The temperature dropped drastically, from 90 degrees Celsius using the competitive grease to approximately 50 degrees Celsius using LE's Almagard 3751. They experienced no more melting or grease dripping from the bearings. Their greasing intervals were reduced from a minimum of three times daily to a couple of shots weekly. The vast reduction in grease consumption resulted in significant savings.



*Nasir Ince, Portvale's mechanical engineering manager, and LE representative Michael Tang stand near the unigrator machine in the Portvale Sugar Factory.*

In addition, the possibility of a bearing failing during operation and resulting in downtime drastically decreased.

"Since we began using Almagard 3751 on this unit, we have had no more problems with the Unigrator bearings," said Nasir Ince, mechanical engineering manager. "When we opened up the unit for routine maintenance, the grease in the bearings was found to be as good as new. Everyone is very comfortable with the performance of Almagard 3751 because the results obtained are obvious. We will continue to use it in this application and have extended its usage in the factory to the bearings on the boiler feed pumps and forced draft fans."

### **Other LE Products Used**

- Almagard® Vari-Purpose Lubricant (3752) for some slow-moving, heavy-loaded bearings
- H1 Quinplex® Penetrating Oil & Lubricant (4058) for penetrating and rust prevention purposes
- Clear Grease Guns

*Thank you to Nasir Ince, mechanical engineering manager, for providing the information used in this report.*