



BY TIMKEN

Polymer Solid Lubricant



Grease-Free for Life

Ball-and roller-bearings are traditionally lubricated with grease and oils. These lubricants often purge and contaminate the surrounding area, and they may require periodic maintenance through manual or automatic re-lubrication. EDT's solid polymer lubricant (EPL) drastically reduces - or may even eliminate - the problems associated with traditional lubrication.

Advantages of EPL:

- **Never require re-lubrication**
- **Consistently deliver the right amount of lubrication**
- **Resist contamination**
- **Stand up to harsh applications and wash downs**
- **Dramatically improve cleanliness**

EPL extends bearing life by blocking out contaminants and resisting chemicals that lead to early bearing failure.



Physical characteristics of EDT's Polymer Solid Lubricant

EPL is a superior solid lubricant that combines a micro-porous polymer with high quality, high performance synthetic lubricant and other additives. The chemical composition of the polymer, additives and synthetic lubricant vary depending on the lube, and should be selected for the application. For example, food grade USDA-H1 approved oils are used in food processing formulas. Additional additives modify performance characteristics, such as:

- low operating temperature
- reduced friction
- increased load and extreme pressure

How EDT Polymer Solid Lubricant works

EPL's micro-porous structure is comprised of millions of microscopic pores that hold and release lubricating oil. As the bearing rotates and the rolling element track warms, oil is released from the interconnected micro-pores of the solid polymer to lubricate the bearing. Oil is retained in the matrix through surface tension. The polymer's micro-porous structure traps oil throughout its entire mass and slowly delivers lubrication to the bearing as needed. EPL formulas contain 50% to 80% oil by weight, which is 2 to 5 times more oil than standard grease. The oil-permeated solid polymer also fills and seals the open space of the bearing to block out contaminants that lead to early bearing failure.



Technical Information

Proven applications include severe service environments such as:

- **USDA-inspected** / high levels of sanitation
- **Contaminated environments** (dirt, sand, flour, etc.)
- **Low operating temperatures**
- **Difficult to reach** or maintain bearings
- **Wash down**; chemical cleaning
- **Oscillating**
- **Wet** environments
- **Vertical shaft-mounted bearings**
- Temperatures to 350° F / 175° C



Polymer Solid Lubricant limitations

The use of solid polymer lubricant limits operating speeds of all bearings. Additionally, solid polymer lubrication formulas have maximum recommended operating temperatures. These can be found in the chart below. To calculate speed limitation **at ambient temperatures**, use the following formula:

$$\text{Maximum rpm} = \frac{\text{Ndm value}}{(\text{O.D.} + \text{Bore})(.5)}$$

[All dimensions in mm]

Ndm values	
Bearing Type	Ndm value
Single row deep groove ball bearings with steel cage, including ceramic hybrid	300,000
Radial and insert bearings with plastic cage	40,000
Double row deep groove and angular contact ball bearings	150,000
Cylindrical roller and self aligning ball bearings	150,000
Spherical roller bearings	84,000
Tapered roller bearings	44,000

EDT Lube P/N	Solid Lubricant Description	H1 Food Contact	Operating Temp
F	High performance oil-permeated polymer	YES	-55°F to 215°F -48°C to 93°C
B	Low temperature, high performance, oil-permeated polymer	YES	-65°F to 75°F -54°C to 93°C
K	High temperature high performance oil-permeated polymer	YES	-25°F to 350°F -32°C to 176°C
R	Higher temperature high performance oil-permeated polymer	YES	-40°F to 475°F -40°C to 246°C
E	Industrial grade low friction oil-permeated polymer	NO	-55°F to 215°F -48°C to 102°C
More formulations available for specific applications			

LITF418-0117