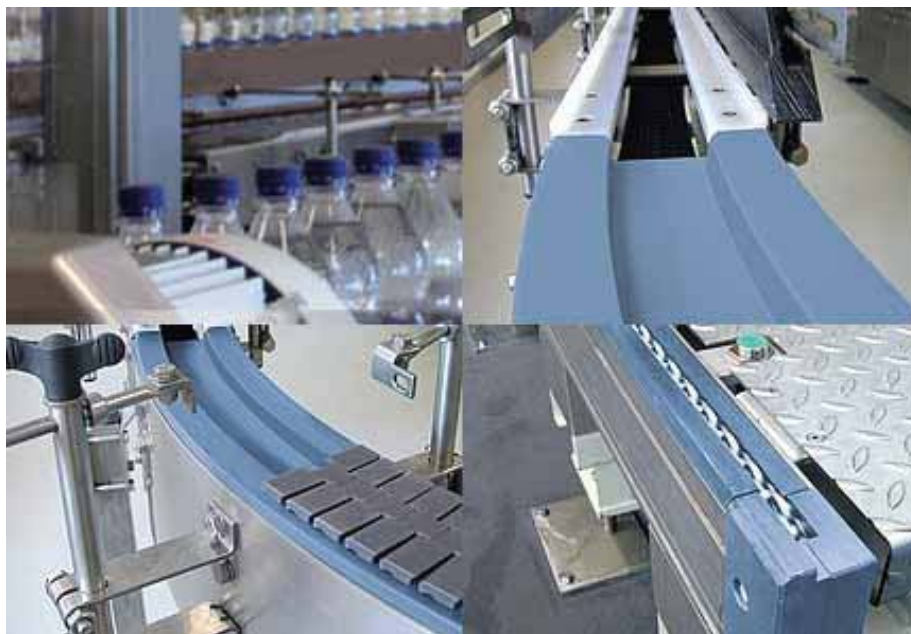




ROBCO WHITE PAPER

THE UHMW WITH THE LOWEST COEFFICIENT OF FRICTION

THE KEY TO LOWER OPERATION COSTS

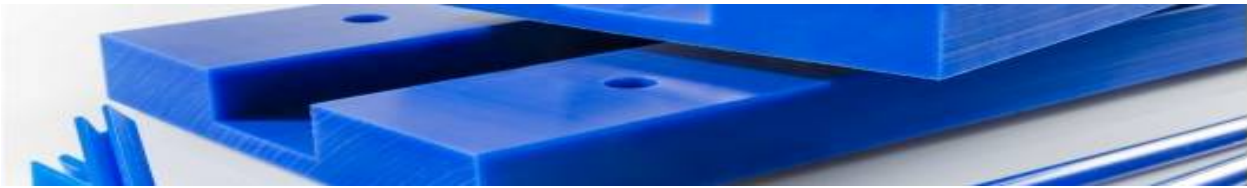


Abstract

This new high-performance material facilitates complex conveyor movement without lubrication and increases process stability. In order to demonstrate sliding performance, tribological testing was performed.

Introduction

Sliding properties have been optimized for applications with steel and plastic chains. With a coefficient of friction of 0.08 to 0.11 compared with 0.32 for regular UHMW (75% less friction), conveying systems equipped with Robco SLIDE-X UHMW require considerably less energy to operate. SLIDE-X reduces the amount of energy that is otherwise transformed into heat and noise instead of motion. In most cases, a lower coefficient of friction will also lead to a lower wear rate.



General information:

- Wear is the progressive loss of material as a result of surface interaction relative to motion.
- Friction is a measure of resistance to motion (loss of energy) of two interacting surfaces.

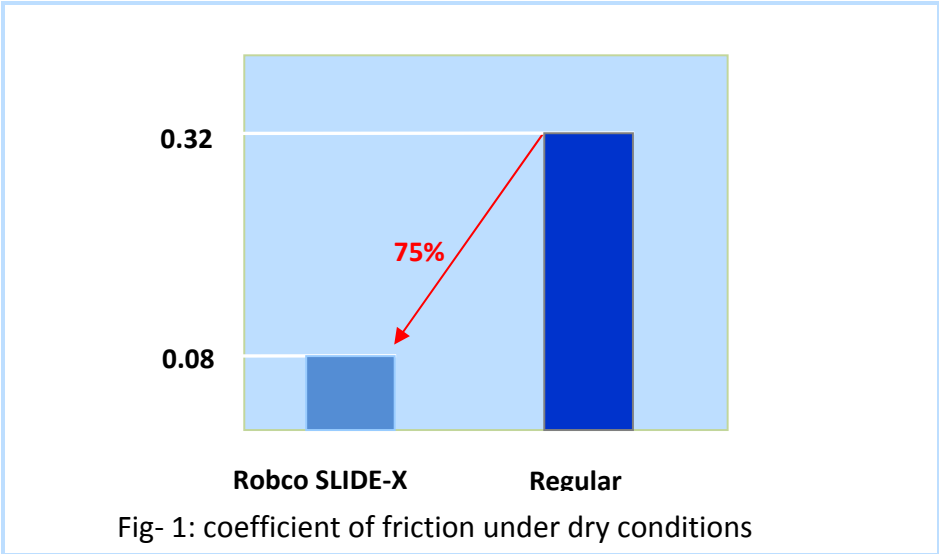
Test Procedures and Results:

The main factors to be considered that influence the tribological system regarding wear and friction are:

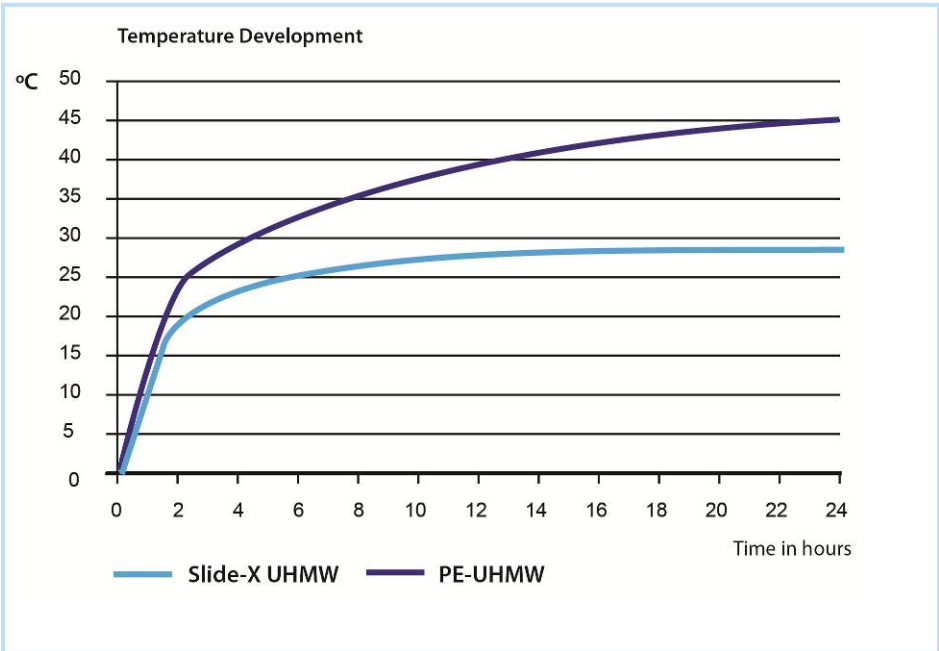
- **Contact pressure:** increased surface load leads to increased wear rate and friction
- **Relative velocity** of surfaces: increased velocity results in increased wear and friction

An evaluation of sliding parameters was performed using various tests:

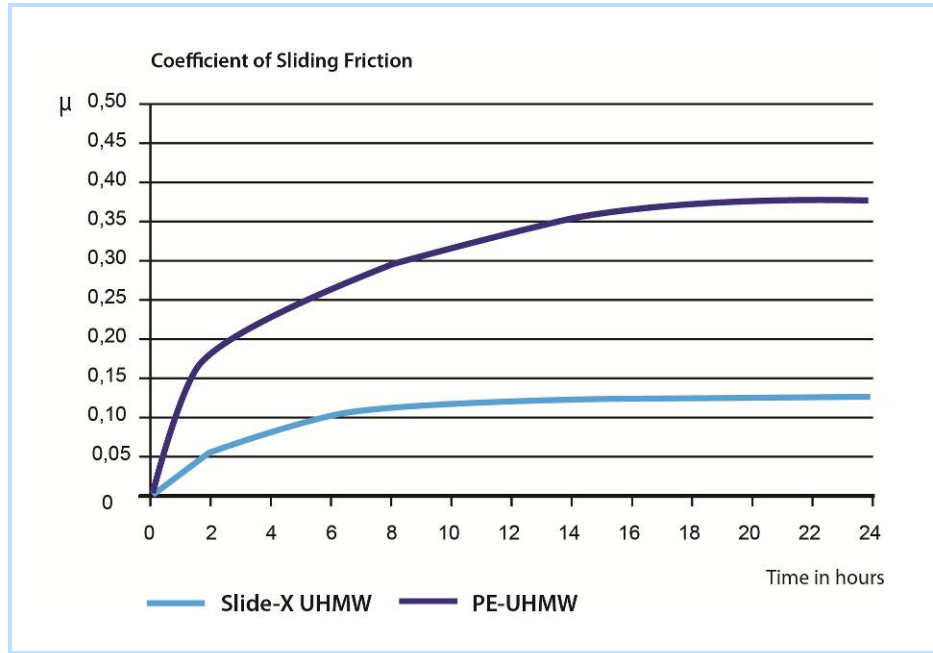
- 1. **Coefficient of friction** under dry conditions where speed was doubled to 0.5 m/s and surface pressure was doubled to 0.5 MPa:



- 2. **Thermal Analysis:** an infrared sensor measured temperature increase directly on the friction surface of the sample. The temperature of Robco SLIDE-X did not rise above 28°C, while the regular UHMW-PE material remained around 45°C.



3. **Wear:** Under the same test conditions, wear property (PV) was measured. Robco SLIDE-X reached a PV limit of 20. Regular UHMW material reached a PV value of 17.5.



Conclusion

Tests results that compared Robco SLIDE-X versus regular UHMW-PE demonstrate a clear performance improvement for conveyor or other moving applications found in the industrial sector.

Special features of ROBCO SLIDE-X UHMW

- Especially useful with POM and moving steel parts
-
- 75% reduction of coefficient of friction with POM versus regular UHMW-PE
- 60% reduction of coefficient of friction with steel versus regular UHMW-PE
- Suitable for contact with food (FDA/21CFR 177.1520)
- Good machinability
- Outstanding wear resistance

Benefits of Robco SLIDE-X UHMW:

Brings added value by making systems more reliable and powerful:

- Motion becomes smoother and more efficient
- Reduces maintenance costs
- Can be used at higher speeds
- New design opportunities
- Savings in lubricant costs
- Energy savings
- Reduces noise and vibration

Availability:

Extruded profiles, sheets, round rods, machined components

Examples of Robco SLIDE-X UHMW applications:

Conveyor parts, wear parts, fender pads

Robco is your complete development process source: we will help you select the optimum engineered polymer according to your specific needs; design, prototype, test, and provide quality control, manufacturing and follow-up.

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