



Whitepaper

## **UHMW Polymer - a successful Approach to lining Bulk Handling Equipment**

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Ultra-High Molecular Weight (UHMW) polymer sheets are made from resins manufactured by Hercules Inc. under the trademark Dyna-Flo UHMW sheet. This material has unique friction and abrasion properties and is therefore used successfully as a liner material. The advantages and fastening procedures are described for self-unloading ships, dragline buckets, rail cars, dump trucks, screw augers, large hoppers etc.

### **1. Introduction**

Innovative techniques are improving bulk handling efficiency in a large number of important areas cargo unloading, dragline buckets, chute liners, railcars, dump trucks, screw augers, coal reclaimer buckets and breaker chutes. One of the cost-saving methods that all have in common is the liner involved.

Often for different reasons energy costs, labor savings, operational speedups the liners have benefited from the innovative approaches suggested by Mentor Dynamics Ltd. of Waterloo, Ontario and its U. S. headquarters in Glen Burnie, Maryland.

The liner Mentor Dynamics chose for selling its unique concepts to bulk handlers from shippers to truckers to mine operators is an ultra-high molecular weight

(UHMW) polymer sheet made from resins manufactured by Hercules Incorporated, Wilmington, Delaware, USA. This family of resins, designated Hercules 1900 polymer, has a molecular weight ranging from three to six million. UHMW polymers exhibit a unique combination of properties which include: low coefficient of friction; the highest abrasion resistance of any thermo-plastic polymer; exceptional impact resistance even at cryogenic temperatures; non-stick surfaces; good chemical and crack resistance; cyclical fatigue resistance; noise dampening properties; and FDA and USDA sanction for use in food, meat, and poultry applications.