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# Plurasafe® CL HC 1400S

(Breox®<sup>1</sup> CL 1400S)

## Synthetic PAG lubricant for ethylene hyper-compressors

### Description

Plurasafe CL HC 1400S is a fully formulated compressor lubricant based on polyalkylene glycol used in ethylene hyper-compressors up to 3500 bar for LDPE (Low-Density-Poly-Ethylene) manufacture.

### Application

Plurasafe CL HC 1400S proves to be more effective at reducing pre-polymer formation and is also recommended for use under conditions where copolymers of ethylene with other monomers are being manufactured, for example, vinyl acetate monomer (VAM). Therefore it is recommended under the following conditions:

- For copolymers of ethylene and vinyl acetate containing up to 15 % VAM.
- Polymerisation of ethylene where conditions result in some pre-polymerisation of the ethylene in the hyper-compressor or heat exchanger.

### Features and benefits

During the production of low-density polyethylene, the ethylene gas feedstock is compressed at pressures up to 3500 bar. The final stage compression is carried out in high speed reciprocating compressors known as hyper-compressors. Polyalkylene glycols are generally the most cost effective solutions as described below.

- Polyalkylene glycols are much less soluble in ethylene than are white oils or polyisobutylenes. Therefore a two fold advantage is observed:
  - o viscosity reduction due to ethylene dissolving in the lubricant is minimised.
  - o lubricant is much less likely to be removed, or washed, from the plunger running zone.
- Polyalkylene glycols have superior load carrying and lubricant performance compared to white oils and polyisobutylenes, thus minimising wear on plungers and packings. Typical life time figures for packings reported by end-users are in the range of 20,000–40,000 hours.
- Polyalkylene glycols have relatively flat pressure-viscosity characteristics compared to white oil, polyisobutylenes and mixtures thereof. This means that they flow more readily in the high pressure lubricant lines of the compressor and are much less likely to solidify in the lines at lower temperatures.

**Approvals/Specification**

- Burckhardt Compression AG
- NSF registered (FDA compliant components)

**Typical properties**

Properties	Unit	Typical value	Method
Density at 20 °C	kg/m <sup>3</sup>	1096	ASTM D-1298
Viscosity Index	-	195	ASTM D 2270
Viscosity at 40 °C	mm <sup>2</sup> /s	270	ASTM D 445
Viscosity at 100 °C	mm <sup>2</sup> /s	41,3	ASTM D 445
Flash point	°C	249	ASTM D 92
Pour point	°C	-6	ASTM D 97

**Storage stability**

The product in original package can be stored for max. 5 years at ambient storage conditions and temperature without any deterioration.

**Safety**

When using this product, the information and advice given in our Safety Data Sheet should be observed. Due attention should also be given to the precautions necessary for handling chemicals.



Plurasafe CL HC grades are composed exclusively of regulated food additives intended for use in a lubricant with incidental food contact, and are in compliance with the food additive provisions of the Federal Food, Drug and Cosmetic Act, citation 21 CFR 178.3570. As such the Breox CL grades are NSF registered as FDA compliant products (former USDA H1 regulations).

**Note**

<sup>1</sup> Breox<sup>®</sup> is a registered trademark of BP p.l.c., used under licence

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We support worldwide Responsible Care<sup>®</sup> initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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