

ADDINOL Cliptec XHS 280 and XHS 150 HT for the use in film stretching lines



ADDINOL Cliptec XHS 280 and **ADDINOL Cliptec XHS 150 HT** are chain lubricants based on carefully selected, fully synthetic components and efficient additives. They are designed especially for high-temperature applications up to +250 °C.

- ✓ particularly developed for conveyor chains and clamps in film stretching lines
- ✓ highly suited for the use in conveyor belts, chains and rolls in ovens and driers
- ✓ preferred for chains operating in industries processing plastics and non-ferrous metals

These are your practical benefits:

- ✓ specifically tailored high-temperature characteristics (for applications up to +250 °C)
- ✓ ideal for high sliding speed
- ✓ reduced consumption thanks to minimum evaporation losses
- ✓ reliable protection against wear at high loads
- ✓ long operating lives and reduced maintenance because of clean components without residues
- ✓ minimised incrustation, cracking and residues
- ✓ no throwing or dripping off, especially at high chain speed, no damaging of films
- ✓ efficient prevention of stick-slip-effects at all operating conditions
- ✓ excellent compatibility with all plastic materials used in film production
- ✓ Cliptec XHS 280 listed according to NSF H2/HX-2 for the safe use for food industry

Characteristic values	Test conditions	Unit	XHS 280	XHS 150 HT	Tested acc. to
Viscosity at	40°C	mm ² /s	295	275	ASTM D 7042
	100°C	mm ² /s	25	24	
	200°C	mm ² /s	3.9	3.8	
Flash point	COC	°C	290	280	DIN EN ISO 2592
Corrosion category on steel	Method A		passed	passed	DIN ISO 7120
Corrosion category on copper	at 150°C, 3h	Corrosion degree	1	1	DIN ISO 2160
Evaporation loss		%	< 2.0	< 2.0	DIN 51581-1
VKA Wear scar diameter	1 h, 300 N	mm	0.34	0.36	DIN 51350-3
VKA Welding load		N	1800/2000	1800/2000	DIN 51350-2
Stick-slip friction coefficient		μ	0.11	0.115	LÜ 2100

Film stretching lines place extreme requirements on the lubricant

Modern film stretching lines operate non-stop at very high speed and temperatures. These conditions mean enormous loads on all components. The heart of each plant is the TDO (Transfer Direction Orientator) chain – it must run safely and smoothly to prevent production downtimes and to ensure highest film quality at any time.

Constantly high temperatures, which are typical of plants of this type, bring about the risk of boil-off losses, fouling, encrusted deposits and lubricant residues on chain components and tracks, supply pipes can block because of clogging lubricants. All these factors quickly can cause a standstill of the whole plant.

In addition, all components are prone to wear because of the prevailing loads which constantly are on a high level. This calls for a reliable all-round protection provided by the lubricant. In order to guarantee a stable lubricating film, optimum adhesion even at high speeds is necessary. Economic consumption and efficient use are taken for granted. The outstanding friction behaviour of ADDINOL Cliptec XHS reduces thermal and mechanical loads on all components; this in turn increases plant efficiency.

ADDINOL Cliptec XHS 280 and XHS 150 HT master the special challenges in film stretching lines

- ✓ **Cliptec XHS 280** particularly fit for modern plants with high chain speed (250 up to 450 m/min) and increased chain tension
- ✓ **Cliptec XHS 150 HT** preferred for plants at medium speeds (< 350 m/min) and normal chain tension

■ Highest thermal-oxidative stability

The chain lubricants of the ADDINOL Cliptec range are based on fully synthetic components and carefully selected additives ensuring highest ageing stability. Because of their high flash point at low viscosity the ADDINOL Cliptec chain lubricants are ideal for an application at high temperatures. They do not form any varnish or incrustations on surfaces and components which could hinder the run of the chain. Lubricant feed pipes remain free of deposits and clogging.

In addition, lubricants of the ADDINOL Cliptec range display minor evaporation losses only also at high temperatures – this way they reduce consumption and keep loads of the oven atmosphere with oil residues at a minimum level. This in turn facilitates the metallising of the films.



*Competitive product
Feed pipes clogged up with
deposits*



*ADDINOL Cliptec XHS 280
Feed pipes without deposits,
full functional capability*



*Competitive product
Chain with deposits and
incrustations on the surface*



*ADDINOL Cliptec XHS 280
Clean chain components
without cracked residues or
deposits*

ADDINOL Cliptec XHS 280 and XHS 150 HT

A Reliable protection against wear

Plants in the manufacturing and processing of films operate non-stop and under high thermal and mechanical loads. All components require stable and reliable lubrication to prevent wear and to achieve maximum operating lives of the components.

The chain lubricants of the ADDINOL Cliptec range produce excellent results in the Four-ball-tester according to DIN 51350-3, wear scar diameter after one hour and a force of 300 Newton measures 0.34 mm.



Clips at the use of ADDINOL Cliptec XHS 280

A Increased efficiency

Because of its efficient additivation ADDINOL Cliptec XHS 280 possesses a superior friction coefficient* compared to competitive products. The lowering of friction both at low and at high loads brings about a decrease of the energy demand. Thermal and mechanical loads on the components are minimised with positive effects on the overall operating life of the plant. At the same time, efficiency is improved and less energy is required for driving the chains.

Reduction of friction coefficients can be illustrated by the help of the test results achieved on the slide friction test rig (see chart 1). These test results are confirmed by the excellent experiences from practice. Power input of the chain drives of a film stretching line decreases immediately after changing over to ADDINOL Cliptec XHS 280 compared to the competitive product applied before at the same lubricant quantity and the same speed. It continues to decrease with further application, which means that less engine power is required for driving the chains – see chart 2.

* friction coefficient = ratio of the force of friction between two bodies and the force pressing them together, depends on material, surface quality and speed.

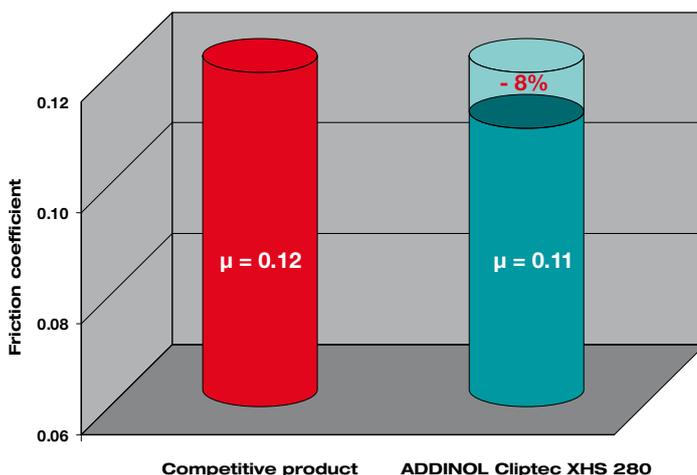


Chart 1: Test on slide friction test rig – significant reduction of friction for ADDINOL Cliptec XHS 280 compared to competitive product

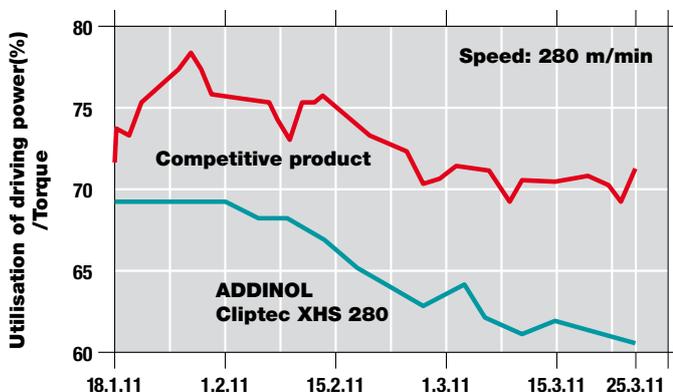


Chart 2: ADDINOL Cliptec XHS 280 and competitive product compared. With ADDINOL Cliptec XHS 280 torque is reduced, as a consequence less energy input is required.

ADDINOL Cliptec XHS 280 and XHS 150 HT

Tips for practice

Trouble-free changeover

Before changing over we recommend the cleaning with ADDINOL System Cleaner HT in critical applications. Thanks to its excellent creeping capacity the product cleans actively and loosens solid and sticky residues thoroughly. It can be used at temperatures up to +240 °C and provides safe wear protection for all components. With ADDINOL System Cleaner HT deposits and residues of lubricants previously applied are removed efficiently and reliably and the lubricants of the ADDINOL Cliptec range can unfold their full performance immediately and targeted.

Reduced cleaning

Practice shows: ADDINOL chain lubricants of the Cliptec XHS range leave only minor deposits on chain components. Therefore no additional cleaning is required; downtimes and maintenance costs are reduced significantly.

Just in case

In addition to the high-performance chain lubricants the ADDINOL range also provides gear oils for the application in extruders (Eco Gear series, Gear oil F, Poly Gear PG), heat transfer oils XW and hydraulic oils for plastics industry. Furthermore, the ADDINOL portfolio includes a selection of greases specifically tailored to all applications.



... before cleaning



... after cleaning with ADDINOL System Cleaner HT



Clip with black residues after 21,000 operating hours with competitive product



Clip without residues after 18,500 operating hours with ADDINOL Cliptec XHS 280

Source photos: BRÜCKNER Maschinenbau GmbH & Co. KG,
ADDINOL Lube Oil GmbH