

LUBRICANTS

UCON™ OSP Fluids

Oil-soluble polyalkylene
glycol lubricant technology

DOW

®



UCON™ OSP fluids

A breakthrough in oil-soluble PAG lubricant technology

UCON™ OSP fluids from Dow represent a significant advancement in polyalkylene glycol (PAG) lubricant technology. These unique products offer compatibility with mineral oils and synthetic hydrocarbon base oils as well as many other base oils while retaining key benefits of traditional PAG lubricant technology, including high viscosity index values, low pour points and excellent film forming benefits.

Compatible with Group I-IV hydrocarbon base oils, UCON™

OSP fluids enable lubricant and grease manufacturers to create innovative new generations of PAG-based products providing world class lubrication, while maintaining compatibility with mineral oils and polyalphaolefins (PAO) base fluids. They also provide manufacturers with the flexibility to reformulate existing products, replacing esters with a PAG-based alternative.

Product description

UCON™ OSP fluids are oil-soluble base fluids that offer the historical advantages of PAG-based synthetic lubricant technology without past compatibility limitations with hydrocarbon oils. Available in five viscosity grades, UCON™ OSP fluids can be used as primary base oils, co-base oils and as additives in automotive and industrial lubricant formulations.

They can be blended with mineral oils to provide upgraded, semi-synthetic base oils offering improved deposit control, oxidation stability, viscosity index and low temperature stability. UCON™ OSP fluids impart excellent friction control when used as additives in formulations containing mineral oils and PAOs.

Applications for UCON™ OSP fluids include industrial air compressor fluids, industrial hydraulic fluids, fire-resistant hydraulic fluids, metalworking fluids, greases, turbine oils, gear lubricants, automotive friction modifiers, automotive deposit control additives, and co-base oils for automotive engine oils.

Product features and benefits multi-purpose – UCON™ OSP fluids are available in a wide range of ISO viscosity grades and offer formulators the option to design many types of lubricants such as hydraulic fluids, metalworking fluids, greases, and engine and transmission oils.

Air release – Fluids formulated with UCON™ OSP fluids as the primary base oil have very low air release times. For example, a formulated UCON OSP synthetic hydraulic fluid has an air release time of less at 50°C of less than 1 minute using ASTM D3427. This may allow equipment builders to design smaller reservoir sizes, reduce the risk of cavitation and also lower the rate of fluid oxidation.

Compatibility – Unlike conventional PAGs, UCON™ OSP base oils provide oil miscibility in Group I-IV hydrocarbon oils.

Physical properties – In addition to offering high VI values and low pour points, UCON™ OSP base oils are also hydrolytically stable, unlike chemistries such as synthetic esters and vegetable oils.

Deposit control – When UCON™ OSP fluids are used as primary or co-base oils in formulations, deposit formation is minimized compared with many traditional hydrocarbon based products.

Friction control – Low treat levels of UCON™ OSP fluids in hydro-carbon base oils can provide excellent friction control due to the excellent film forming properties of PAGs. PAGs including UCON™ OSP fluids also provide inherently mild extreme pressure properties.

Safe to handle – UCON™ OSP fluids are designed to meet the highest environmental, health and safety performance standards.

UCON™ OSP 32 is included in the Lubricant Substance Classification List (LuSC-list) and is favorable with regard to biodegradability, aquatic toxicity and renewability for use in Lubricants.



Typical physical properties of UCON™ OSP fluids

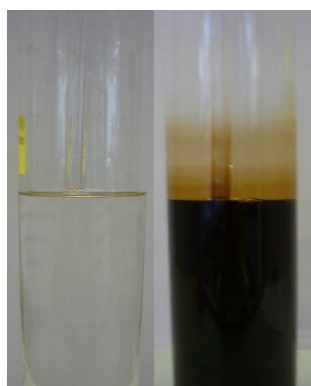
Property*	Method	OSP-18	OSP-32	OSP-46	OSP-68	OSP-680
Viscosity at 40°C, mm²/s	ASTM D445	18	32	46	68	680
Viscosity at 100°C, mm²/s	ASTM D445	4.0	6.5	8.5	12	77
Viscosity index	ASTM D2270	123	146	164	171	196
Pour point, °C	ASTM D97	-41	-57	-57	-53	-30
Flash point (COC), °C	ASTM D92	204	216	216	216	243
Acid number, mg KOH/g	ASTM D974	<0.1	<0.1	<0.1	<0.1	<0.1
Four ball wear scar, mm**	ASTM D4172	0.58	0.58	0.58	0.48	0.38

*Typical properties, not to be construed as specifications.

**Load = 40 kg, temp = 75°C, speed = 1200 rpm, time = 60 min

Deposit control study – Concentration effect of OSPs

Mineral oil

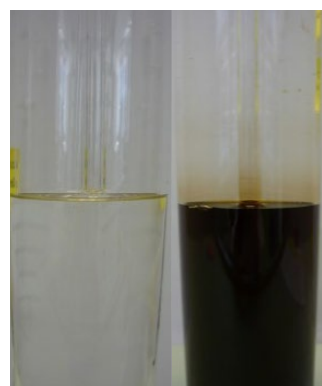


0d

50d

*Deposit
free*

Mineral Oil + OSP-46 (1%)

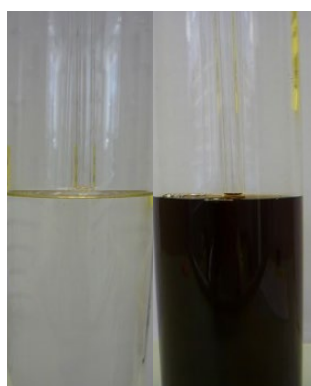


0d

50d

*Deposit
free*

Mineral Oil + OSP-46 (5%)



0d

50d

*Deposit
free*

Mineral Oil + OSP-46 (10%)



0d

50d

*Deposit
free*

Modified ASTM D2893B at 120°C

Regulatory and disposal

Requirements for reporting accidental fluid spills and discharges may vary from country to country, region to region, or from city to city. It is important that you contact the appropriate authorities in your local area to clearly understand any reporting or other requirements.

Consult local sewage treatment plant authorities for regulations prior to disposing of any product. For guidance in the U.S., contact your local Water Board, regional office of the Environmental Protection Agency, or the appropriate regulatory authority. In other nations, contact the appropriate regulatory authority in your area.

Product safety

When considering the use of any Dow products in a particular application, review the current Material Safety Data Sheet (MSDS) and ensure that the use you intend can be accomplished

safely. For MSDS and other product safety information, contact Dow at the number for your area, listed in this brochure. Before handling any other products mentioned in the text of this brochure, obtain the available product safety information and take necessary steps to ensure safe use.

No chemical should be used as or in a food, drug, medical device, cosmetic; or in a product or process in which it may contact a food, drug, medical device or cosmetic; until the user has determined the suitability and legality of the use. Since government regulations and use conditions are subject to change, it is the user's responsibility to determine that this information is appropriate and suitable under current, applicable laws and regulations.

Dow requests that the customer read, understand, and comply with the information contained in this publication and the current MSDS. The customer should furnish the information in this publication to its employees,

Emergency service

Dow maintains a 24-hour emergency service for its products. The American Chemistry Council (CHEMTREC) and Transport Canada (CANUTEC) also maintain 24-hour emergency service:

Location	Dow products	All chemical products (in case of emergency)
United States and Puerto Rico	800-DOW-CHEM	Phone CHEMTREC: 800-424-9300
Canada	1-800-424-9300	Phone CANUTEC: 613-996-6666 (collect)
Europe, Middle East, North and Central Africa	31 115 69 4982	
Latin America, Asia-Pacific, South Africa, any other location worldwide	Phone United States 800-424-9300 352-323-3500	
At sea, radio U.S. Coast Guard, which can directly contact Dow: 800-DOW-CHEM or CHEMTREC: 800-424-9300		

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

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