

Syn-O-Ad® Phosphate Esters

Overview

Syn-O-Ad® lubricant additives and base stocks are triaryl or trialkyl phosphates which provide:

- Ashless anti-wear/EP film formation;
- Superior oxidation and thermal stability; and
- Biodegradable fluids.

Organic phosphate esters are important functional additives employed in lubricants and metalworking fluids. Syn-O-Ad® lubricant additives are free of metallic, sulfur, and chlorine compounds providing ashless anti-wear/EP properties in:

- MIL-L-23699 type aero derivative turbine lubricating fluids (Syn-O-Ad® 8484);
- Aviation phosphate ester fire resistant fluid base stock (Syn-O-Ad® 8412);
- Drilling mud additives (Syn-O-Ad® 8412);
- Polyol ester, PAO, or alkylated benzene based refrigerant lubricants (Syn-O-Ad® 8478);
- Vegetable oil based hydraulic fluids;
- Low ash 4-stroke piston aviation engine oils (Syn-O-Ad® 8485);
- Low ash 2-stroke engine oils (Syn-O-Ad® 8485, 8478);
- ATF fluid formulations (Syn-O-Ad® 8485);
- Grease formulations (Syn-O-Ad® 8478, 9578);
- Seal swell agent in Type III and Type IV base oils (Syn-O-Ad® 8478); and
- Metalworking fluids.

Syn-O-Ad® phosphate ester products offer superior oxidative stability properties over other phosphate esters based on P₂O₅ chemistry. Lubrication is enhanced based on the decomposition of the additive at the contacting metal surfaces. Additive level in formulations ranges between 1-3 wt %. Improved seal swell level is at 1-2 wt%.

Syn-O-Ad® Product Selector

Butylated Phenyl Phosphate

- Syn-O-Ad® 8485
- Syn-O-Ad® 8478
- Syn-O-Ad® 8477

Propylated Phenyl Phosphate

Syn-O-Ad® 9578

Tributyl Phosphate

Syn-O-Ad® 8412

Tricresyl Phosphate

Syn-O-Ad® 8484

Trixylenyl Phosphate

Syn-O-Ad® 8475

Syn-O-Ad[®] Physical Properties (Typical Properties)

Product	8412	8477	8478	8485
Appearance	Clear liquid	Clear liquid	Clear liquid	Clear liquid
Odor	None	None	None	None
Specific Gravity, 20°C/20°C	0.977— 0.980	1.148 — 1.162	1.150 — 1.180	1.175 — 1.190
ISO VG	3	46	34	26
Pour Point, °C	-80	-18	-23	-26
Flash Point, °C [COC]	165	260	257	241
Total Acid Number, mg KOH/g	0.1 max.	0.1 max.	0.05 max.	0.1 max.
Water Content, weight %	0.15 max.	0.1 max.	0.05 max.	0.1 max.
Phosphorus content, weight %	11.7	7.7	8	8.5

Safety & Handling

Consult the Material Safety Data Sheet for this product.

Shipping Information

Syn-O-Ad[®] 8412 is available in bulk tank trucks, isocontainers, and 455 lb drums.

Syn-O-Ad[®] 8477 is available in bulk tank trucks, isocontainers, and 525 lb drums.

Syn-O-Ad[®] 8478 is available in bulk tank trucks, isocontainers, and 533 lb drums.

Syn-O-Ad[®] 8485 is available in bulk tank trucks, isocontainers, and 533 lb drums.

For more information about our products and to place an order, please contact one of Supresta's regional sales offices.

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