SIP SPECIALITY OILS AND FLUIDS

SIPADD

- Commodity additives for an extensive range of applications
- For cost-effective formulation to enhance the performance of oils and greases
- For anti wear, anti oxidancy, corrosion inhibition and detergency
- For replacement of common formulation options
- For neat metal working fluids, greases, AW hydraulic oils, and marine oils
- For use with most oils and fluids

A range of cost-effective lubricant additives

- ✓ Primary and secondary zinc additives
- ✓ Low-base and high-base calcium sulphonates
- ✓ Calcium phenate
- ✓ Low and high molecular weight dispersants*
- ✓ Aminic and phenolic anti-oxidants*
- ✓ Viscosity modifiers and pour point depressants*
- ✓ Automotive and industrial additive packages*

SIP Speciality Oils and Fluids introduced a range of SIPADD lubricant additives a few years ago, and due to its continued success continues to expand the range.

The SIPADD range of additive components enables a blender to formulate and boost industrial and automotive lubricants in a quick and cost-effective way, without unnecessary cost for product validation and testing.

SIP's technical team has identified the most appropriate offerings in the market and ensure that SIP quality standards warrant performance of these components.

The range contains a number of basic component categories that meet the typical specifications known to and required by companies to formulate for everyday applications, including use in two- and four-stroke engine oils for automotive, motorcycle and agricultural use, industrial applications such as hydraulic, compressor and gear oils, and specialist applications like marine oils, wirerope lubricants and greases, plus a variety of aftermarket solutions.

As market needs evolve the SIPADD portfolio will continue to evolve with it in light of market interest and customer feedback. SIP's technical team have many years experience in helping customers to formulate products and they take pride in understanding our customers requirements and concerns. They will be happy to work with you to identify the most appropriate solutions in our current and future portfolio to meet your needs!

* = under consideration

ZINC ADDITIVES FOR ANTIWEAR AND ANTIOXIDATION

ZDDPs are multifunctional components, that not only have anti-wear characteristics but also act as oxidation inhibitors and corrosion preventatives.

This makes them ideal for formulating both automotive and industrial lubricants, enhancing wear performance in heavily loaded engine parts, particularly the valve train mechanisms and protecting vanes in hydraulic pumps. These additives are also widely used in metalworking fluids, greases, and a variety of other industrial applications.

With the superior wear and bearing corrosion control provided by the SIPADD ZDDPs, outstanding engine protection is obtained. For industrial lubricants, the products deliver longer life and reduced equipment failures.

SIPADD	ZP100	ZP150	ZS100	ZM200
Alkyl type	Primary alkyl	Primary alkyl	Secondary alkyl	Primary/ secondary alkyl mix
Zn content	9.5%	9.5%	9%	9.4%
S content	16.8%	16%	16.8%	16.8%
P content	8.2%	8.4%	8.2%	8.2%

Typical treat rates follow common formulation practice and typically are between 0.5%wt and 3.0 wt% depending on application

CALCIUM DETERGENTS FOR DEPOSIT CONTROL

SIPADD	DS400	DS430	DS25	DP270
Type	High base calcium sulphonate	High base calcium sulphonate	Low base calcium sulphonate	High base calcium phenate
TBN	400mg/KOH/g	430mg/KOH/g	25mg/KOH/g	270mg/KOH/g
Ca content	15%	16.5%	2.6%	10.1%
Treat rate	0.5-5%wt	Up to 5%wt	Up to 2.5%wt	0.5 to 4%wt
Notes	For engine oils and marine cylinder oils	Specifically suited to calcium sulphonate greases	Specifically for piston deposit control; salt spray corrosion protection	Suitable for lower sulphate ash formulations

Treat rates depend on application, but are often between 0.5 to 5% wt, except where very high levels of TBN are required for marine cylinder oils where the dosages used can be up to 25% wt.

Calcium Sulphonate detergents are the most widely used components in engine oils for reducing deposits and providing a high degree of anticorrosion and antirust protection. The SIPADD range contains both high and low based options, used on their own or in combination, to provide the required performance.

High base sulphonates prevent the build up of engine deposits and reduce varnish, helping to maintain engine efficiency and reducing the risk of dramatic failure. With the dramatic increase in the volumes of calcium sulphonate based greases in Europe over the last 10 years, the use of SIPADD-DS430, has become very important to the industry. It provides excellent EP properties, coupled with corrosion inhibition and oxidation stability.

The SIPADD range also contains a high base calcium phenate that provides excellent acid neutralisation capacity, corrosion control, and increased oxidation stability.

ANTI OXIDANTS FOR HIGH-TEMPERATURE PERFORMANCE

SIPADD	AOP	AOA
Type	Ester-phenolic	Diphenylamine
Particulars	Liquid; KV40 7 cSt Flash point 195°C	TBN 179 mgKOH/g; N content 4.5%
Treat rate	0.3 to 0.5%wt	Up to 1.0%wt
Application	Widely used in automotive engine oils and industrial applications, especially hydraulics, gear oils, turbine oils and greases	Transmission fluids and compressor oils

The SIPADD range includes two widely used different antioxidant types, to provide cost-effective performance at high temperature. They are based on phenolic and amine chemistry, and give a synergistic response when used together.

Both show high thermal stability, outstanding anti-oxidation performance at high temperatures and good oil solubility, and compatibility with other additives used in automotive and industrial formulations.

DISPERSANTS FOR SOOT AND SLUDGE CONTROL

The SIPADD range contains a range of PIBSIs (polyisobutylene succinimide) ashless dispersants, prepared from high reactive polyisobutylene. These types of products suspend soot in engine oils, disperse sludge which contributes to inhibiting carbon deposits and the formation of varnish film that thicken the oil, causing wear and plug filters. It has good compatibility with other additives.

SIPADD	PB13	PB23
Type	PIBSI dispersant	PIBSI dispersant
Molecular weight	1300 MW	2300 MW
TBN	26mgKOH/g	22mgKOH/g
Nitrogen	1.3%	1.1%

A GROWING PORTFOLIO

SIP continues to expand the range of additives and the introduction of viscosity modifiers and point depressants is under consideration. Longer-term entry-level additive packages may be introduced. Many of the additives already are registered for EU REACH and UK REACH. Please contact the SIP Technical team for more information.

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See how we can help your business
+44 (0)20 7717 0100 enquiries@sip.com www.sip.com

SIP Limited
Westminster Tower
3 Albert Embankment
London SE1 7SP
United Kingdom