

FUNCTIONAL DF-400

NSF HX-1 and Ecolabel LuSC-listed Silicone Defoamer for Lubricants

APPLICATION:

FUNCTIONAL DF-400 is a versatile non-toxic and non-flammable silicone defoamer for excellent foam reduction in white oil, PAO, paraffinic, and bio-based oils. **FUNCTIONAL DF-400** is NSF HX-1 and listed on the European Ecolabel LuSC List and is US EPA Vessel General Permit (VGP) compliant.

FUNCTIONAL DF-400 is ideally suited for H1 base fluids to make incidental food contact lubricants and contains no kerosene or flammability hazards. Volatile defoamers may flash over when applied in the field to treat problems.

COMPOSITION:

FUNCTIONAL DF-400 is a concentrated silicone polymer in low volatility NSF H1 base fluids.

Typical properties	
Defoamer Chemistry	Silicone
Appearance	Light Yellow
Odor	Fatty
Density	7.1 lb/gal
Typical Flash Point (ASTM D92, COC)	165°C / 330°F
Kinematic Viscosity at 40 °C (ASTM D445)	5 cSt

TREATMENT LEVEL:

0.1 – 1.0wt% **FUNCTIONAL DF-400** is sufficient to eliminate foam. 0.1wt% is effective as a top treat to adjust foam to required levels. See next page for example cases.

HANDLING:

Store at room temperature. The products should be used in a well-ventilated area; see the current Safety Data Sheet. See next page for a safety comparison to other commercial defoamers.

Nonfood Compounds
Program Listed
Category Codes: HX-1 and HX-2
Registration No. 163254



This Technical Data Sheet and the Safety Data Sheet contain information believed to be accurate and reliable. No warranty is made, however, to information beyond the control of FUNCTIONAL PRODUCTS INC. The engineering and management personnel of the user are responsible for determining the suitability of this or any product for any specific application, and this information is offered to them for that purpose.

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FORMULATION GUIDE:

FUNCTIONAL DF-400 is recommended for low polarity base fluids including paraffinic Group I/II/III, PAO, and white oil. Triglyceride stocks can be treated at 1.0wt%.

ASTM D892 Sequence I Foam Results* Before/After FUNCTIONAL DF-400 Treat

	ISO 32 HF	ISO 100 Hydraulic Fluid	ISO 150 H1 Gear Oil	ISO 220 H1 Gear Oil	ISO 460 H1 Gear Oil
Base Oil Type	Group II	Vegetable	White Oil	PAO/ mPAO	White Oil/ PB
ASTM D892 Foam Before	100/0	80/10	510/160	240/0	400/0
wt% FUNCTIONAL DF-400	0.1%	1.0%	0.1%	0.1%	0.25%
ASTM D892 Foam After	0/0	30/0	0/0	0/0	0/0

* Denoted as "[mL of foam tendency after 5 min] / [mL of foam stability after 10 min]" @ 25 °C

Flashpoint and Hazard Comparison vs. Popular Mineral Oil Defoamers

	Carrier Fluid	Flashpoint (D92 or D93)	GHS Hazards
FUNCTIONAL DF-400	NSF H1 base fluid	165°C / 330°F (open cup)	Aspiration Toxicity 1
Silicone Defoamer "FB"	Light isoalkanes	106°C / 223°F (open cup)	Aspiration Toxicity 1
Acrylate Defoamer "PX"	Kerosene	46°C / 115°F (closed cup)	Flammable 3 Skin Irritation 2 Eye Irritation 2
PAG Defoamer "TL"	Light aromatic naphtha, Methylbenzenes, Isooctanol	47.8°C / 118°F (closed cup)	Flammable 3 Skin Irritation 2 Eye Irritation 2 Carcinogenicity 2 Aquatic Chronic 2

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