

## Metalworking Additives Technical Data Sheet – EMULSIFIERS (1 of 3)

MULSIFAN polyethylene glycol and polypropylene glycol esters provide excellent nonionic water and oil emulsifying properties in hard and soft water with low foaming tendency. MULSIFAN ethers are also excellent nonionic surfactants, coupling and wetting agents. A wide range of HLB values are available to meet the formulation requirements of metalworking fluids and water-based hydraulic fluids. These products are also widely used as surfactants and dispersants for industrial cleaners, degreasers, personal care and cosmetic applications.

Product Name	Chemistry	State @ Room Temperature	HLB Value	Color	pH*	Specific Gravity
MULSIFAN 200 DHCFA	PEG ester	Solid	6.6	White	6	0.95
MULSIFAN 200 DL	PEG ester	Solid	6.7	White	6	0.95
MULSIFAN 200 DO	PEG ester	Liquid	5.3	Yellow	6	0.94
MULSIFAN 200 DT	PEG ester	Liquid	5.2	Yellow	6	0.95
MULSIFAN 200 MHCFA	PEG ester	Liquid	9.9	Colorless	6	0.99
MULSIFAN 200 ML	PEG ester	Liquid	10.0	Colorless	6	0.99
MULSIFAN 200 MO	PEG ester	Liquid	8.3	Yellow	6	0.97
MULSIFAN 200 MS	PEG ester	Solid	8.3	White	6	0.95
MULSIFAN 200 MT	PEG ester	Liquid	8.2	Yellow	6	0.98
MULSIFAN 200 SO	PEG ester	Liquid	6.7	Yellow	6	0.95
MULSIFAN 300 DHCFA	PEG ester	Liquid	8.1	Colorless	6	0.97
MULSIFAN 300 DL-H	PEG ester	Liquid	8.2	Colorless	6	0.97
MULSIFAN 300 MHCFA	PEG ester	Liquid	11.9	Colorless	6	1.01
MULSIFAN 300 ML	PEG ester	Liquid	12.0	Colorless	6	1.00
MULSIFAN 300 MO	PEG ester	Liquid	10.3	Yellow	6	0.99
MULSIFAN 300 MS	PEG ester	Solid	10.3	White	6	0.98
MULSIFAN 300 MT	PEG ester	Liquid	10.2	Yellow	6	1.00
MULSIFAN 400 AZ	PEG ester	Liquid	14.5	Yellow	6	1.10
MULSIFAN 400 AZD	PEG ester	Liquid	14.5	Yellow	6	1.07
MULSIFAN 400 D1	PEG ester	Liquid	8.3	Yellow	6	0.98
MULSIFAN 400 DHCFA	PEG ester	Liquid	9.9	Colorless	6	0.99
MULSIFAN 400 DL	PEG ester	Liquid	10.0	Colorless	6	0.99
MULSIFAN 400 DL-S	PEG ester	Liquid	10.0	Colorless	6	0.99
MULSIFAN 400 DO	PEG ester	Liquid	8.3	Yellow	6	0.98
MULSIFAN 400 DO-VEG	PEG ester	Liquid	8.3	Yellow	6	0.98
MULSIFAN 400 DS	PEG ester	Solid	8.3	White	6	0.94
MULSIFAN 400 DS-S	PEG ester	Solid	8.3	White	6	0.94
MULSIFAN 400 DT	PEG ester	Liquid	8.2	Yellow	6	0.98
MULSIFAN 400 DT-VEG	PEG ester	Liquid	8.2	Yellow	6	0.98
MULSIFAN 400 M1	PEG ester	Liquid	11.8	Yellow	6	1.01
MULSIFAN 400 MC-810	PEG ester	Liquid	14.4	Colorless	6	1.05
MULSIFAN 400 MHCFA	PEG ester	Liquid	13.2	Colorless	6	1.03
MULSIFAN 400 ML	PEG ester	Liquid	13.3	Colorless	6	1.03
MULSIFAN 400 MO	PEG ester	Liquid	11.8	Yellow	6	1.01

\*pH measured as 5% product in distilled water.

## Metalworking Additives Technical Data Sheet – EMULSIFIERS (2 of 3)

Product Name	Chemistry	State @ Room Temperature	HLB Value	Color	pH*	Specific Gravity
MULSIFAN 400 MO-VEG	PEG ester	Liquid	11.8	Yellow	6	1.01
MULSIFAN 400 MP	PEG ester	Liquid	14.3	Colorless	6	1.05
MULSIFAN 400 MS	PEG ester	Solid	11.7	White	6	1.01
MULSIFAN 400 MT	PEG ester	Liquid	11.6	Yellow	6	1.01
MULSIFAN 400 MT-VEG	PEG ester	Liquid	11.6	Yellow	6	1.01
MULSIFAN 400 SO	PEG ester	Liquid	9.8	Yellow	6	0.99
MULSIFAN M400 C9	M-PEG ester	Liquid	14.3	Colorless	6	1.04
MULSIFAN 600 DHCFA	PEG ester	Solid	11.9	White	6	1.01
MULSIFAN 600 DI	PEG ester	Liquid	10.3	Colorless	6	0.99
MULSIFAN 600 DL-H	PEG ester	Solid	12.0	Colorless	6	1.02
MULSIFAN 600 DO	PEG ester	Liquid	10.3	Yellow	6	0.99
MULSIFAN 600 DO-VEG	PEG ester	Liquid	10.3	Yellow	6	0.99
MULSIFAN 600 DS	PEG ester	Solid	10.3	White	6	0.97
MULSIFAN 600 DT	PEG ester	Liquid	10.2	Yellow	6	1.00
MULSIFAN 600 DT-VEG	PEG ester	Liquid	10.2	Yellow	6	1.00
MULSIFAN 600 M1	PEG ester	Liquid	13.6	Yellow	6	1.04
MULSIFAN 600 MHCFA	PEG ester	Liquid	14.9	Colorless	6	1.04
MULSIFAN 600 ML	PEG ester	Liquid	15.0	Colorless	6	1.04
MULSIFAN 600 MO	PEG ester	Liquid	13.6	Yellow	6	1.03
MULSIFAN 600 MS	PEG ester	Solid	13.6	White	6	1.01
MULSIFAN 600 MT	PEG ester	Liquid	13.5	Yellow	6	1.04
MULSIFAN 600 MT-VEG	PEG ester	Liquid	13.5	Yellow	6	1.04
MULSIFAN 600 ST	PEG ester	Liquid	11.6	Yellow	6	1.00
MULSIFAN 1000 DO	PEG ester	Solid	12.8	White	6	1.01
MULSIFAN 1000 MO	PEG ester	Solid	15.5	White	6	1.03
MULSIFAN 1000 MS	PEG ester	Solid	15.5	White	6	1.05
MULSIFAN 4000 MS	PEG ester	Solid	18.7	White	6	1.08
MULSIFAN 6000 DS-H	PEG ester	Solid	18.3	White	6	0.97
MULSIFAN CB	PG ether	Solid	10.1	White	6	0.94
MULSIFAN CO-25 TL	PEG ester	Liquid	7.7	Yellow	6	0.99
MULSIFAN CPA	PG ether	Liquid	9.0	White	6	0.94
MULSIFAN CTP 14	EO/PO	Liquid	14.0	Colorless	6	1.04
MULSIFAN L101 DO	EO/PO	Liquid	N/A	Yellow	6	1.00
MULSIFAN L101 DS	EO/PO	Liquid	N/A	Yellow	6	1.00
MULSIFAN L121 DO	EO/PO	Liquid	N/A	Yellow	6	1.01
MULSIFAN L61 DO	EO/PO	Liquid	N/A	Yellow	6	0.99
MULSIFAN L61 DO-S	EO/PO	Liquid	N/A	Yellow	6	0.99

\*pH measured as 5% product in distilled water.

## Metalworking Additives Technical Data Sheet – EMULSIFIERS (3 of 3)

Product Name	Chemistry	State @ Room Temperature	HLB Value	Color	pH*	Specific Gravity
MULSIFAN L61 DS	EO/PO	Liquid	N/A	Colorless	6	0.99
MULSIFAN L61 DT	EO/PO	Liquid	N/A	Yellow	6	0.99
MULSIFAN L61 MS	EO/PO	Liquid	N/A	Colorless	6	0.99
MULSIFAN L61 MT	EO/PO	Liquid	N/A	Yellow	6	1.00
MULSIFAN L62 DO	EO/PO	Liquid	N/A	Yellow	6	1.01
MULSIFAN L81 DO	EO/PO	Liquid	N/A	Yellow	6	1.00
MULSIFAN PPG 1000 DO	PPG ester	Liquid	N/A	Yellow	N/A	0.96
MULSIFAN PPG 1000 DO-VEG	PPG ester	Liquid	N/A	Yellow	N/A	0.96
MULSIFAN PPG 1000 DS	PPG ester	Liquid	N/A	Yellow	N/A	0.96
MULSIFAN PPG 1000 DT	PPG ester	Liquid	N/A	Yellow	N/A	0.96
MULSIFAN PPG 2000 DO	PPG ester	Liquid	N/A	Yellow	N/A	0.97
MULSIFAN PPG 2000 DS	PPG ester	Liquid	N/A	Yellow	N/A	0.97
MULSIFAN PPG 2000 DT	PPG ester	Liquid	N/A	Yellow	N/A	0.98
MULSIFAN PPG 4000 DO	PPG ester	Liquid	N/A	Yellow	N/A	0.99
MULSIFAN RT 1	PEG ester	Liquid	10.0	Amber	6	0.99
MULSIFAN RT 11	PG ether	Solid	15.8	Yellow	6	1.01
MULSIFAN RT 110	PG ether	Solid	10.1	White	6	0.94
MULSIFAN RT 113	PEG ester	Liquid	9.0	Amber	6	0.97
MULSIFAN RT 133	PG ether	Solid	12.6	White	6	0.99
MULSIFAN RT 163	PEG ester	Liquid	7.6	Amber	8	1.00
MULSIFAN RT 203/80	PG ether	Liquid	14.4	Colorless	6	1.04
MULSIFAN RT 258	POE ether	Solid	9.4	Yellow	6	0.94
MULSIFAN RT 410 G	EO/PO	Liquid	10.0	Amber	7	0.98
MULSIFAN S40HO-H	PEG ester	Liquid	10.2	Yellow	6	1.04
MULSIFAN S50HO-H	PEG ester	Liquid	11.4	Yellow	6	0.97
MULSIFAN SCO	SCO	Liquid	N/A	Amber	7.5	1.05
MULSIFAN SML-20	PEG ester	Liquid	16.7	Yellow	5.5	1.07
MULSIFAN SMO-20	PEG ester	Liquid	15.0	Yellow	7	1.07
MULSIFAN STO-20	PEG ester	Liquid	11.0	Yellow	6	1.00
MULSIFAN TEAO	TEAO (Anionic)	Liquid	12.0	Yellow	10	0.95

\*pH measured as 5% product in distilled water.

Please inquire about additional tailor-made products that can be made to fit your exact performance requirements.

MULSIFAN is a trade name of Zschimmer & Schwarz Inc. Zschimmer & Schwarz Inc. and its marketing subsidiaries, affiliates, partners and suppliers, disclaim responsibility for results of use of the Materials or of any product, method, or apparatus mentioned herein. Nothing stated herein is to be considered a recommendation or inducement of any use, manufacture or sale that may infringe any patents or any other proprietary rights now or hereafter in existence. The Materials are intended to act as a guide for use at your discretion and risk. We assume no liability in connection with the use, or the utilization of the Materials or the methods or products described therein. Information pertaining to availability, pricing and technical assistance for these products can be obtained from the marketing department, through the nearest sales representative or authorized distributor. Copyright © 2020 Zschimmer & Schwarz Inc. | All Rights Reserved