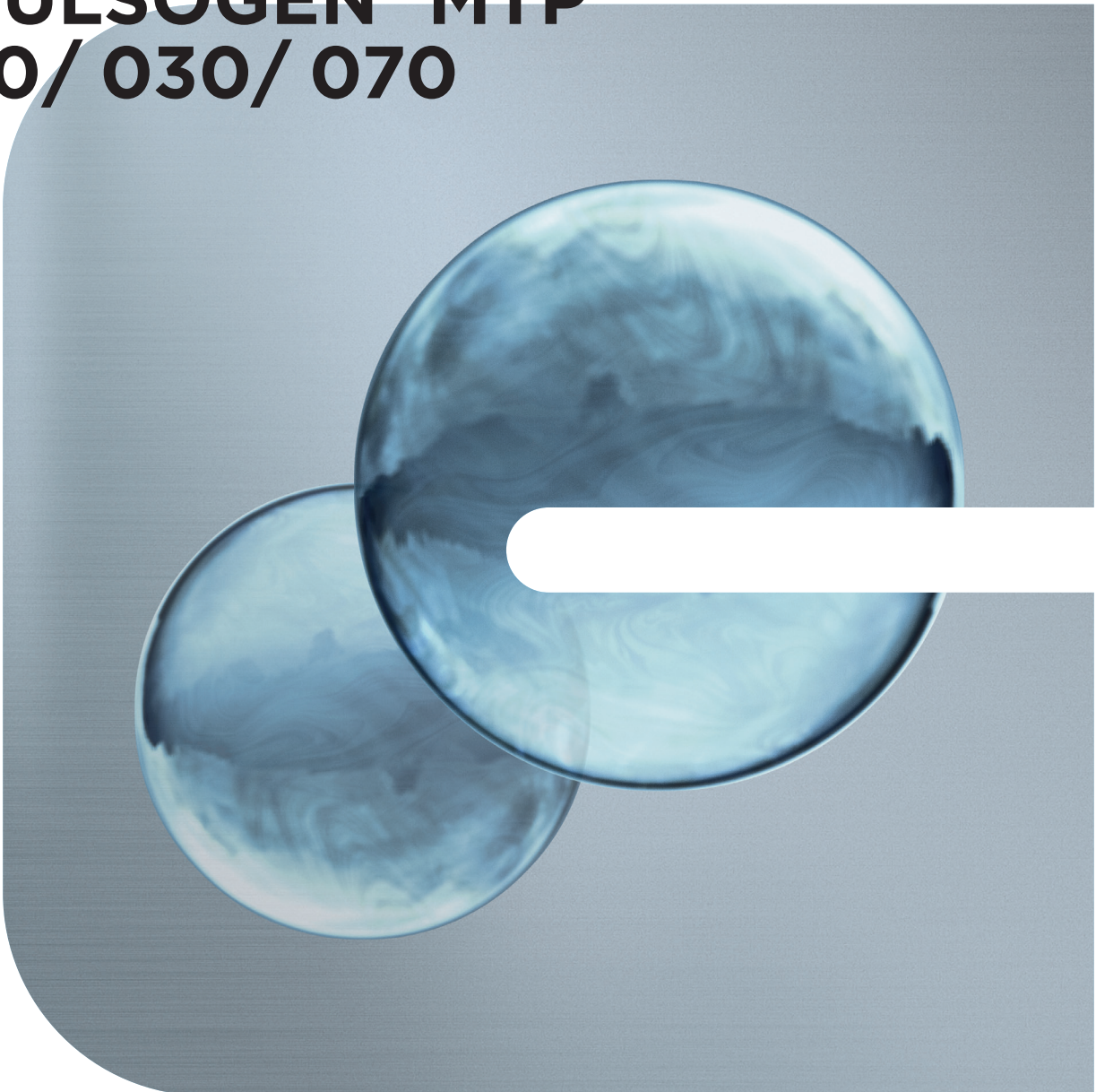


Low foaming emulsifiers
EMULSOGEN[®] MTP
020 / 030 / 070



Clariant Industrial Lubricants superior low foam technologies

Addressing the market trend of continuous productivity increase, the manufacturing industry is relentlessly upgrading and striving for novel processes and superior technologies. Production processes are accelerated and deployed metal working fluids are applied at increasing pressures. Awareness of health and ecological impacts are moving the industry towards less harmful ingredients¹.

However, higher application pressure favors the formation of foam in the fluid reservoirs of the machinery which might cause shutdowns or increase maintenance efforts. That is why Clariant has developed multifunctional emulsifiers with a superior low foaming profile that are at the same time label-free, protecting our environment and people's health.



Discover our state-of-the-art low foaming emulsifier range and find out how our label-free Emulsogen MTP range addresses requirements for lubricant additives of the next generation and support you to stay ahead of the industry.

Performance overview at a glance

PRODUCT PROFILE

Depending on your specific needs, different product characteristics allow to choose the most suitable emulsifier for your formulation:

PRODUCT	EMULSOGEN M	EMULSOGEN MTP 020	EMULSOGEN MTP 030	EMULSOGEN MTP 070
Labelling	●	●	●	●
Low foaming	●	●	●	●
Emulsification power	●	●	●	●
Compatibility close to Emulsogen M	●	●	●	●
Lime soap dispersing	●	●	●	●
Low temperature handling	●	●	●	●
Solubility in mineral oil and ester	●	●	●	●
Lubrication	●	●	●	●

● medium
● good
● excellent

TECHNICAL KEY DATA

	EMULSOGEN M	EMULSOGEN MTP 020	EMULSOGEN MTP 030	EMULSOGEN MTP 070
CAS-No	68920-66-1	68002-96-0	68002-96-0	68002-96-0
Chemical product group	fatty alcohol ethoxylate		fatty alcohol alkoxyate	
Appearance	clear, colourless to yellowish liquid			
Cloud point (5% in 25ml 25% BDG solution)	66.8°C	42.5°C	45°C	66.8°C
pH	6-8 (1% /water)	5-7 (1% in ethanol/water 1:1)		
HLB-value	9	8	9	11
Cloud point (DIN ISO 3015)	11-13°C	18°C	9°C	9-11°C
Pour point (DIN ISO 3016)	3-6°C	12°C	3-6°C	3-6°C
Viscosity, 25°C	72 mPas	59 mPas	81 mPas	150 mPas

REGISTRATION STATUS

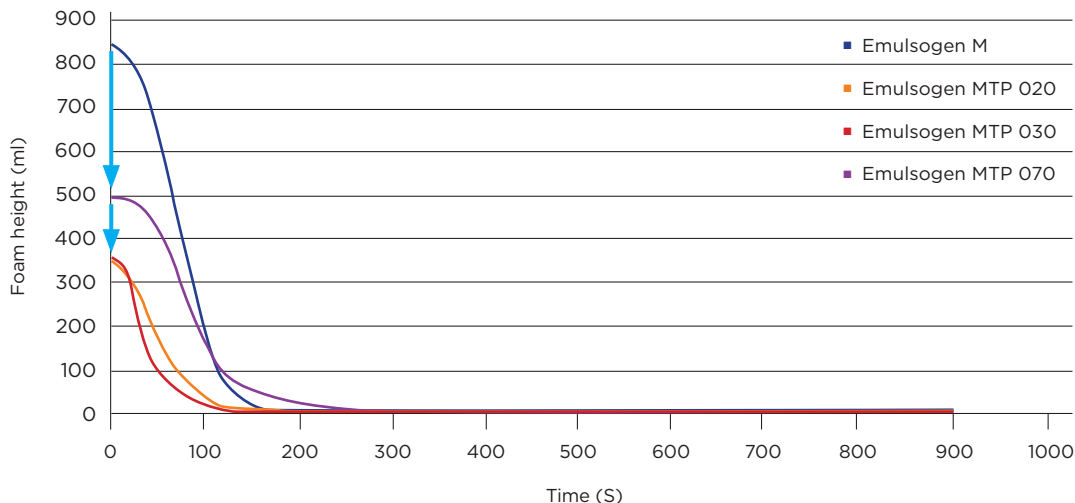
Emulsogen M, Emulsogen MTP 020, Emulsogen MTP 030 and Emulsogen MTP 070 are registered globally.

REGISTERED COUNTRIES	
	<ul style="list-style-type: none"> • REACH (Europe) • TSCA (USA) • DSL (Canada) • AICS (Australia) • IECSC (China) • ENCS (Japan), not listed on PRTR • NECI (Taiwan) • KECI (Korea) • PICCS (Phillippines) • NZIOC (New Zealand)

Key benefits at a glance

EXCELLENT LOW FOAMING EMULSIFIERS

Emulsogen MTP emulsifiers are designed to be very low foaming formulation components. As shown in the graph, Emulsogen MTP 070 reveals excellent low foaming properties. The initial foam height after stirring is approximately half compared to Emulsogen M, which is a cetyl/oleyl alcohol + 5 EO emulsifier. Emulsogen MTP 030 and Emulsogen MTP 020 are pushing low foaming to a new level. Their low foaming behavior is outstanding.



LIME SOAP DISPERSING POWER

Emulsifiers of the Emulsogen MTP range effectively stabilize emulsions against electrolytes and hard water, thus enhancing the fluid lifetime. Emulsogen MTP 070 shows outstanding lime soap dispersing power expressed by a k-value of 20-25g. This value is in the range of ether carboxylates. Emulsogen M, MTP 020 and MTP 030 show very good lime soap dispersing power with a k-value in the range of 17-20g. Lime soap dispersing properties of formulations can be further improved by the addition of ether carboxylic acids, like Emulsogen COL 100².



soaps dispersed
by emulsifier

undispersed
lime soaps

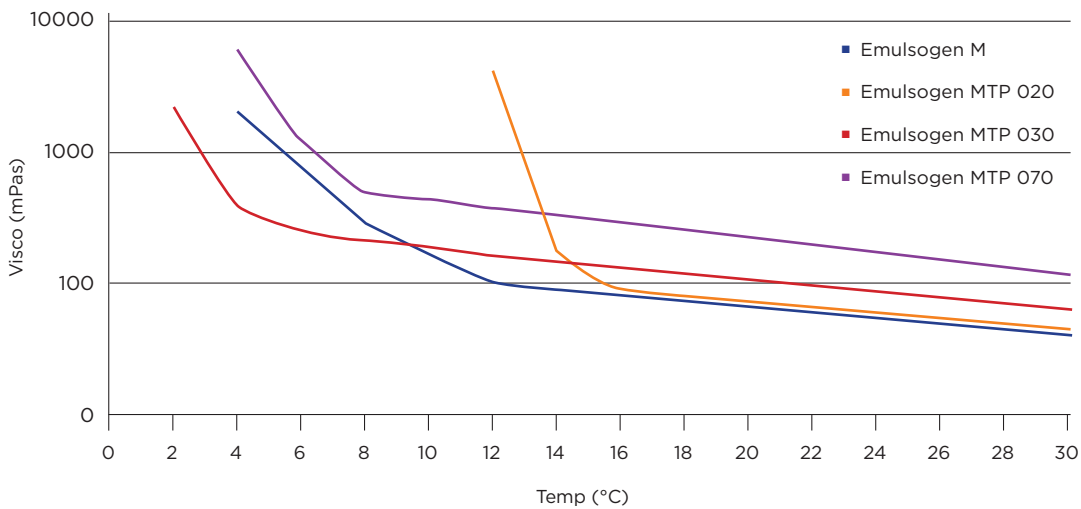
K-VALUE ³	
Emulsogen M	17-20g
Emulsogen MTP 020	17g
Emulsogen MTP 030	20g
Emulsogen MTP 070	20-25g

² Please consult our brochure "Increasing the lifetime of your lubricant emulsions Emulsogen® C range".

³ k-value: according to DIN 53903, quantity of Ca-soaps expressed as calcium oleate dispersed by 1 g of used surfactant

STORAGE AT LOW TEMPERATURE

If a substance is staying clear and homogeneous even at low temperature, additional heating and homogenization of the emulsifiers can be avoided. Time and money can be saved and the risk of decomposition during heating is avoided. That's why low temperature stability is decisive in the choice of your additive. Emulsogen MTP 030 shows outstanding low temperature stability, being a viscous liquid at as low as 5°C. Emulsogen M and Emulsogen MTP 070 are still pump- and pourable at 10°C. Emulsogen MTP 020 is getting cloudy at 15°C, being a solid at 10°C.



OIL SOLUBILITY

In order to ensure storage stability of your releasing agents, the emulsifier needs to be clearly soluble in oil at all temperatures. At room temperature, mixtures of 5% Emulsogen M/ MTP 020/ MTP 030 and MTP 070 form clear solutions in mineral oils and esters. As shown in the table below, at lower temperatures, such as 5°C, some differences are observed. Only Emulsogen MTP 030 shows a "clear" solubility in all mineral oil, esters, e.g. TMP-trioleate and vegetable oil (e.g. rape seed oil) at 5°C.



MINERAL OIL / ESTER AT 5°C	CONCENTRATION OF EMULSIFIER IN OIL	EMULSOGEN M	EMULSOGEN MTP 020	EMULSOGEN MTP 030	EMULSOGEN MTP 070
Naphthenic base oil (Nynas T 22)	1%	clear	clear	clear	clear
	5%	turbid	clear	clear	hazy
	10%	turbid	clear	clear	hazy
Naphthenic base oil (Shell Gravex 915)	1%	clear	clear	clear	clear
	5%	hazy	clear	clear	turbid
	10%	hazy	clear	clear	turbid
Medicinal white oil (Shell Ondina 917)	1%	hazy	clear	clear	hazy
	5%	separation	separation	clear	turbid
	10%	separation	separation	clear	turbid
Rapeseed oil	1%	clear	clear	clear	clear
	5%	turbid	clear	clear	turbid
	10%	separation	clear	clear	turbid
TMP-Oleate	1%	clear	clear	clear	clear
	5%	turbid	clear	clear	turbid
	10%	separation	clear	clear	turbid

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