

Technical Information

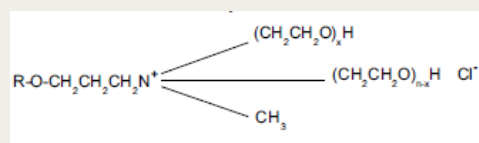
Tomamine® Quaternary Amine Surfactants

Description

Evonik Tomamine® quaternary amines are based on the reaction of aliphatic tertiary amines with methyl chloride using isopropanol as a diluent. The Tomamine® Q-Series ether amine based quats are represented by the formula where R is the alkyl radical and n is the total number of moles of ethylene oxide.

Applications

- Corrosion inhibitors
- Anti-static agents
- Surfactants in non-butyl cleaning systems
- Cationic emulsification
- Detergent boosters



Tomamine® Quaternary Amine Surfactants

Tomamine® Q-14-2	75% active isodecyloxypropyl bis-(2-hydroxy-ethyl) methyl ammonium chloride (Available in propylene glycol as Q-14-2 PG)
Tomamine® Q-17-2	75% active isotridecyloxypropyl bis-(2-hydroxyethyl) methyl ammonium chloride (Available in propylene glycol as Q-17-2 PG)
Tomamine® Q-S-70HG	80% active mono soya methyl ammonium chloride (Available at 70% active in hexylene glycol as Q-S 70HG)
Tomamine® Q-DT	50% active tallow diamine diquaternary (Available at 70% active in hexylene glycol as Q-DT-HG)
Tomamine® Q-C-15	100% active coco poly (15) oxyethylene methyl ammonium chloride
Tomamine® Q-ST-50	50% active trimethyl stearyl quaternary

Typical Properties: Tomamine® Quaternary Amines

	Q-14-2	Q-17-2	Q-S-70HG	Q-DT-HG	Q-C-15
pH, 5% solution	6-9	6-9	6-9	6-8	6-9
Average molecular weight	370	410	410	525	915
Flash Point (°F)	75	75	>200	>200	>200
Specific gravity at 25 °C	0.97	0.97	0.97	0.98	1.06
Gardner color, max	8	8	12	14	11
Pour Point (°F)	0	0	20	40	20
Physical form @ 25 °C	Liquid	Liquid	Liquid	Liquid	Liquid

Performance Advantages

Table 1: Hard Surface Cleaning Performance

Non-Butyl Low VOC Formula vs. Other General Purpose Cleaners

1.0% active, 150 ppm hardness at 22 °C

Formulations Evaluated:

Component	SXS	Tomamine® Q-14-2 / Tomamine® AO-14-2	10% Butyl
Water	83.05%	88.00%	78.75%
Tomamine® Q-14-2 amine	-	1.00	-
Tomamine® AO-14-2 amine	-	1.00	-
Tomadol® 91-6 surfactant	3.25	2.00	3.25
Sodium Carbonate	2.00	2.00	2.00
Sodium metasilicate (5H ₂ O)	4.00	4.00	4.00
EDTA tetrasodium salt (39%)	1.00	1.00	1.00
Tetrapotassium pyrophosphate	1.00	1.00	1.00
Sodium xylene sulfonate, 40%	5.70	-	-
Ethylene glycol butyl ether	-	-	10.00
Total	100.00%	100.00%	100.00%

Figure 1: Gardner Scrub Cleaning Tests for Formulations of Table 3

3 minute soak, 10 strokes

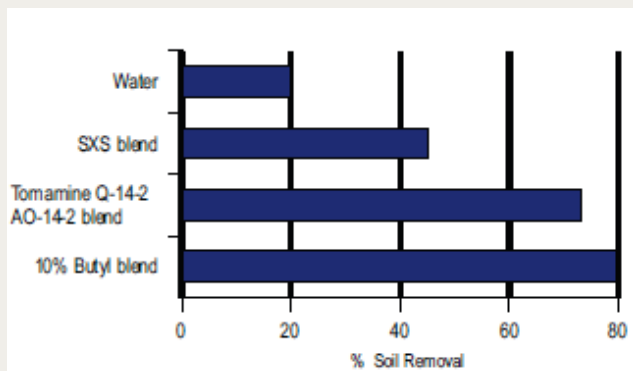


Figure 2: Ross-Miles Foam Height

Initial Foam Height vs. Foam Height after 5 Minutes

0.1% actives; 0 ppm hardness @ 25 °C pH 7.0

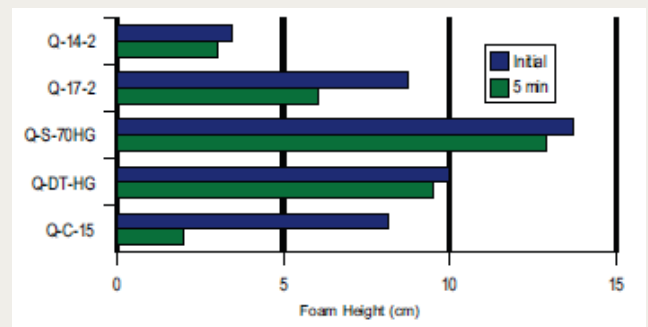
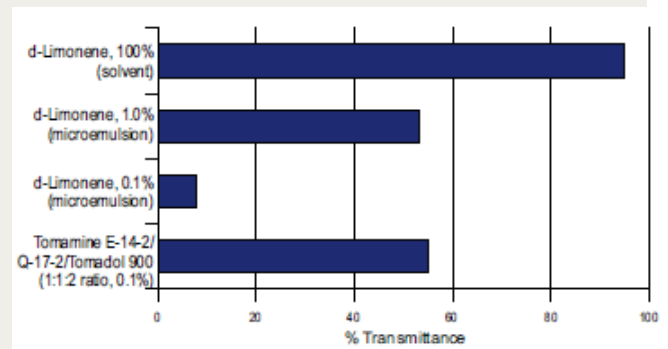


FIGURE 3: Immersion Cleaning Performance

Ternary General Purpose Cleaner/Detergent vs. d-Limonene

0.1% active, 150 ppm hardness @ 12 °C

Soil = lithium grease in motor oil



Storage and Handling

The Tomamine® Quaternary Amine Surfactants should be stored under dry and clean conditions between -10 °C and 50 °C.
Please refer to Material Safety Data Sheet.

Shelf-Life

12 months from the date of manufacture.

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicity and ecological effects

is given in our material safety data sheets.

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