



StarQuat™ Quaternary Ammonium Salts

StarChem, LLC quaternary amines are based on the reaction of a variety of tertiary amines with benzyl chloride, diethyl sulphate, chlorinated carboxylic acids, and other alkylating agents. Our StarQuat products come in a variety of diluents that can be customized according to the customer's needs: water, isopropanol, methanol, ethanol, and other solvents. If you have questions about chemistries or technologies not listed in this guide please feel free to contact us with your inquiry.

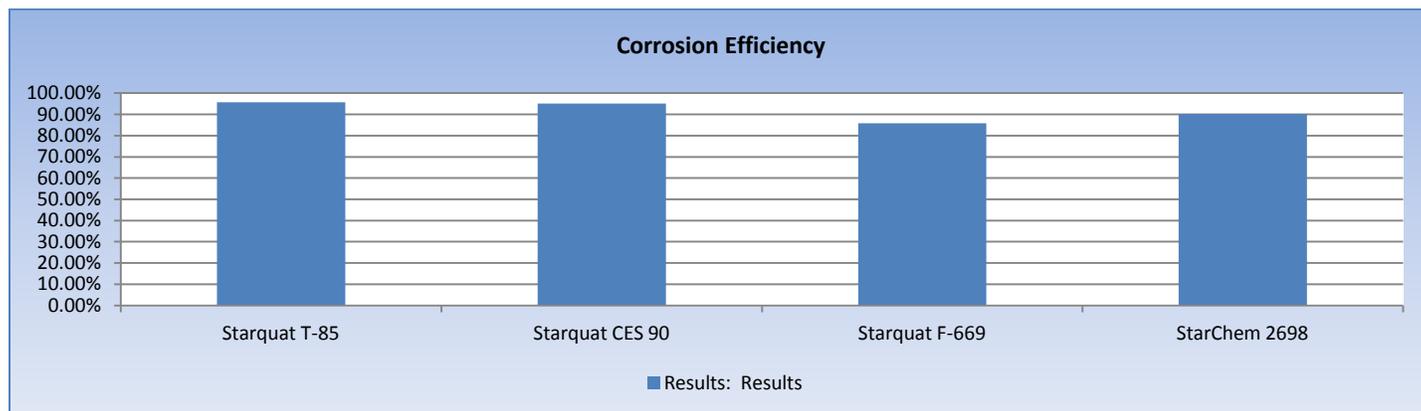
Applications:

- Corrosion inhibitors
- Softeners & debonders
- Anti-static agent
- Disinfectant
- Flow modification
- Cationic emulsification
- Clay treatment
- Catalyst

StarChem Quaternary Amines	
Products	Description
StarQuat BTMAC	Trimethyl benzyl ammonium chloride in water. Currently available in 60% concentrations
StarQuat ESL	60% triethyl benzyl ammonium chloride in water. Currently available in 60% concentrations
StarQuat T-85	85% 12-14 alkyl dimethyl benzyl ammonium chloride in water and isopropanol. Also available in a 50% aqueous solution.
StarQuat CS 90	60% brached polyquaternary amine.
StarQuat F-669	Ethoxylated tallow ammonium ethyl sulfate.
StarSoft 2669	100% active fatty imidazoline ethyl sulfate quat.
StarChem 2698	99% active fatty amide ethyl sulfate quat.

Application Recommendations:		
Application	Product	Application Description
Corrosion inhibitors	StarQuat CS 90 StarChem 2698 StarQuat T-85	Corrosion is a chemical process that has a detrimental effect on equipment and materials commonly used in many industries. StarChem produces several technologies that are used to limit or prevent the effect corrosion has on these materials.
Antistatic agent	StarQuat ESL Conc. StarQuat BTMAC StarQuat F-669	These compounds are used in the treatment of materials or their surfaces in order to reduce or eliminate build up of static electricity. Its role is to make the surface or the material itself slightly conductive, either by being conductive itself, or by absorbing moisture from the air.
Softeners & debonders	StarQuat F-669 StarSoft 2669 StarChem 2698	Quaternary softeners separate themselves from other types of softeners in several key areas. Quaternary softeners can be applied by saturation as well as by exhaustion procedures and are extremely efficient softeners, imparting a very soft, fluffy, smooth hand at low levels of chemical. The handle and drape achieved with a quaternary softener is surpassed by few. Like other types of softeners, quats can improve tear strength, abrasion and sewability.
Clay Treatment (other inorganic materials)	StarQuat BTMAC StarQuat ESL StarQuat T-85	Organoclay is an organically modified phyllosilicate, derived from a naturally occurring clay mineral. By exchanging the original interlayer cations for organocations (typically quaternary alkylammonium ions or quats) an organophilic surface is generated. Organoclay can be used to remove oil from water, as a component in paint formulations or as a viscosifier for oil-based drilling fluids
Cationic Emulsifiers	StarQuat T-85 StarSoft 2669 StarChem 2698 StarQuat F-669	Emulsifiers allow two immiscible liquid phases to be compounded into mixtures. These product can be further categorized by their physical properties, such as; foaming, electrolyte stability, pH stability, wetting performance, emulsification, and hydrotropic properties.
Catalysts	StarQuat BTMAC StarQuat ESL	Phase transfer catalysis (PTC) is the rate enhancement of a reaction between reactants located in different phases (immiscible liquids or solid and liquid) by the addition of a of a PTC that extracts one of the reactants across the interface into the other phase so that reaction can proceed.

Surface Active Properties								
Product	Water Based	Electrolyte Stability	Foaming	Hydrotrope	Acid Cleaners	Alkaline Systems (pH<12)	Foaming	Thermal Stability
StarQuat T-85	✘	Good	Good	✘	✘	✘	Fair	>150 C
StarSoft 2669	✘	Good	Good	✘	✘	✘	Good	>150 C
StarChem 2698	✘	Good	Good	✘	✘	✘	Good	>150 C
StarQuat F-669	✘	Good	Best	✘	✘	✘	Best	>150 C



Testing performed on mild steel in HCl solution. Products were tested at 2 ppm.

Corrosion efficiency calculated:

$(\% \text{ weight loss of control}) - (\% \text{ weight loss of inhibited}) \times 100 / \% \text{ weight loss of control}$

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