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<thead>
<tr>
<th>PRODUCT</th>
<th>DESCRIPTION</th>
<th>MAIN FUNCTION</th>
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<tr>
<td>Q-3</td>
<td>A readily biodegradable surfactant system. Q-3 contains no alkyl phenol ethoxylates.</td>
<td>A versatile surfactant that provides fast wetting and penetration of soils. Effective replacement of phenol ethoxylates and glycols. Removes oil, grease, and particulate soils.</td>
</tr>
<tr>
<td>QCV</td>
<td>A readily biodegradable surfactant system. QCV contains no alkyl phenol ethoxylates. Developed as a lower cost alternative to Q-3 for customers not seeking green certifications. Stable in acids, alkali and hydrogen peroxide. Compatible with nonionic, anionic, cationic surfactants.</td>
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<td>BJS-I</td>
<td>A low pH, organic salt used for acid replacement. BJS-I is phosphate free, contains no VOCs and is a low contributor to BOD/COD in effluents. Classified as a mild skin irritant. Ship DOT as a non-regulated material.</td>
<td>Replaces traditional mineral and organic acids. 50-80% more effective at removing insoluble salts (Ca, Mg, oxides) than phosphoric, citric, and glycolic.</td>
</tr>
<tr>
<td>M-5</td>
<td>A colorless, odorless, low foaming acid replacement technology that can be shipped non-regulated by air, marine and ground. Classified as a non-irritant to skin.</td>
<td>Replaces traditional mineral and organic acids. Safe on most metals, including polished aluminum. Effective at removing insoluble salts (Ca, Mg, oxides) in hinkens.</td>
</tr>
<tr>
<td>MSI/HNA</td>
<td>Proprietary additive for use with BJS-I. Vitech recommends HNA if Green Seal, DfE or Cdn. EcoLogo are required.</td>
<td>Minimizes potential discoloration of certain metals in spray 'n' wipe formulations containing BJS-I.</td>
</tr>
<tr>
<td>1113</td>
<td>Unique acid inhibitor for use with BJS-I.</td>
<td>Developed for immersion formulations. Prevents protection on galvanized metal and aluminum in formulations based on BJS-I.</td>
</tr>
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<td>AFA</td>
<td>An economic, silicone free, anti-fog additive for glass cleaner formulas.</td>
<td>An anti-fog additive that provides additional cleaning.</td>
</tr>
<tr>
<td>SGM</td>
<td>A readily biodegradable surfactant for producing VOC-free glass cleaners and multi-surface cleaners. Formulates a euthanizing, glycol ether or acetate. Produces glass and multifunctional cleaners for glass lens, DL or DL. Eco-friendly. Safe on plastics.</td>
<td>Ability to formulate at or below the cost of traditional silicone based glass cleaners. Can be closed up to 151°C, exceeds capacity, and provides a stress free clean performance.</td>
</tr>
<tr>
<td>DRP</td>
<td>An anionic polymer that creates a hydrophilic surface. Acid and alkaline stable.</td>
<td>DNP treated surfaces reduce soil adhesion and create cleaner surfaces that are easier to clean. Effective on glass, ceramics, acrylics, metals and more. Developed for daily shower cleaner formulas. Provides an invisible barrier that reduces hard water spotting, build-up and soap scum.</td>
</tr>
<tr>
<td>IPB-4</td>
<td>A cationic polymer cleaning system.</td>
<td>Relives soil adhesion on surfaces. The reduced soil adhesion allows surfaces to remain cleaner for a longer period of time. Surface treatment provides enhanced cleaning and optimum stability.</td>
</tr>
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<td>RST</td>
<td>An optimized polymer surfactant that creates a hydrophilic surface. Acid and alkaline stable.</td>
<td>DNP treated surfaces reduce soil adhesion and create cleaner surfaces that are easier to clean. Effective on glass, ceramics, acrylics, metals and more. Developed for daily shower cleaner formulas. Provides an invisible barrier that reduces hard water spotting, build-up and soap scum.</td>
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For a complete list of products and their applications visit our web site at www.vitechinternational.com
**BFP**
Polymeric surfactant for use in transportation pre-soaks, detergents and wheel cleaners. Suitable for producing transportation pre-soaks, detergents and wheel cleaners. Reclaim compatible. Compatible with nonionic, cationic and anionic surfactants. Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils. Provides enhanced rinsing properties. Acid, alkaline and peroxide stable. Can also be used in percarbonate and peroxide based laundry applications.

**CSF/CSF-HC**

**ES-1**
Surfactants for use in transportation pre-soaks, detergents and wheel cleaners. Reclaim compatible. Compatible with nonionic, cationic and anionic surfactants. Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils. Provides enhanced rinsing properties. Acid, alkaline and peroxide stable. Can also be used in percarbonate and peroxide based laundry applications.

**Q-3/QCV**

**FRICTIONLESS VEHICLE CLEANING**
**ES-1**
Nonionic surfactant system with excellent stability in high electrolyte/high alkaline detergents. Reclaim compatible. Compatible with nonionic, cationic and anionic surfactants. Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils.

**Q-3/QCV**
Surfactants for use in transportation pre-soaks, detergents and wheel cleaners. Reclaim compatible. Suitable for use in transportation pre-soaks, detergents and wheel cleaners. Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils. Provides enhanced rinsing properties. Acid, alkaline and peroxide stable. Can also be used in percarbonate and peroxide based laundry applications.

**AT-LP**
Lower pour point for ease of use.

**BT**
A surfactant-based acid thickener. Builds thixotropic viscosity. Provides barrier/soil release properties.

**THIXSET 50**
A surfactant used to build thixotropic viscosity in sodium, lithium and potassium hypochlorites. Provides wetting, detergency and corrosion inhibition. Easy to solubilize.

**LPB**
A patented, live vegetative cell technology. Requires no germination time. Can be used to formulate EPA’s DfE products. Demonstrates an exceptional ability to degrade petroleum hydrocarbons, fats, oils and greases. Soluble in fats and oils at 20% solids.

**QX-9**
Readily biodegradable surfactant that contains no alkyl phenol ethoxylates. Outstanding environmental profile. STABILIZED WITH LPB. Provides fast wetting and soil emulsification properties for producing bacteria based cleaners and degreasers with LPB and/or Bacilox.

**BACILOX**
A series of non-pathogenic, bacillus-based bacterial blend.

**GAD**
A naturally derived, low foam surfactant. Designed for automatic dishwashing machines. Designed for automatic dishwashing machines. Provides a spot-free/streak-free rinse that may eliminate need for rinse additives.

**QX-LF**
A low foam, nonionic surfactant. Alkaline and acid stable.

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SCQ-2
A cationic, siliconized carnauba wax.
Additive for use in clear-coat protectorants, sealer waxes, triple/poly foamers and wash 'n' wax. Provides enhanced water break and water sheeting properties that minimizes water spotting and drying time. Able to claim carnauba wax.

FSE
A fluorinated silicone emulsion. Provides enhanced gloss and water beading properties upon rinsing. Entrenches dirt. Thermostable upon dilution. Use in clear-coat protectorants, water base, high gloss finishes, wash 'n' wax and miscellaneous water based finishes. Provides superior water beading properties.

SQS

SW
A high active, silicone modified, automotive wash and wax concentrate. Provides rapid water beading properties upon rinsing. Enhances shine. Thickens upon dilution.

SCP
A modified silicone/surfactant. Use in stainless steel cleaners, leather, furniture and stone polishes. Cleans and polishes in one step. Safe, quickly and leaves no oily residue.

CWA
A polymeric additive that rapidly clarifies water in cleaning solutions. Stable with anionic, nonionic and cationic surfactants. Quickly splits out particulate soils; keeping solution water cleaner for a longer time period.

MOC
Fully formulated, mineral seal oil based, automotive drying agent concentrate. Superior water sheeting/beading properties. Ability to formulate to a wide range of actives.

NSA
A powdered absorbent system for producing stain removers, polishes and cleaners. Provides gloss & durability. Use where silicones cannot be tolerated. Simply dilute with solvent.

TSR
A 100% active non-silicone additive for solvent based tire and vinyl dressings. Exceptional oil and grease lifting properties from porous substrates. Can be used on wood, asphalt, concrete, stone countertops and composite decking. For producing easily derived, clear fabric softeners. Low odor.

BW
A modified silicone/surfactant. Use in clear-coat protectorants, sealer waxes, triple/poly foamers, wash 'n wax. Provides superior water beading properties. Enhances whitening in percarbonate, peroxide and bleach systems. Maintains whitening properties at lower bleach concentrations. Enhances detergency and soil decontamination.

PS
A modified silicone emulsion. Provides water repellency and enhanced gloss when used in grime, natural stone and synthetic surfaces. Ark an additive for use in paint and protective coatings. Able to claim carnauba wax. Exceptional oil and grease lifting properties from porous substrates. Can be used on wood, asphalt, concrete, stone countertops and composite decking.

PRODUCT
SCQ-2
FSE
SQS
SW
SCP
CWA
MOC
NSA
TSR
CF-80

PRODUCT DESCRIPTION
A cationic, siliconized carnauba wax.
A fluorinated silicone emulsion.
A silicone quaternary.
A high active, silicone modified, automotive wash and wax concentrate.
A modified silicone/surfactant.
A polymeric additive that rapidly clarifies water in cleaning solutions.
A fully formulated, mineral seal oil based, automotive drying agent concentrate.
A powdered absorbent system for producing stain removers, polishes and cleaners.
A 100% active non-silicone additive for solvent based tire and vinyl dressings.
A naturally derived, cationic fabric softener.

FOR A COMPLETE LIST OF PRODUCTS AND THEIR APPLICATIONS VISIT OUR WEBSITE AT www.vitechinternational.com
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<th>IS-50</th>
<th>HIGH FOAMING</th>
<th>HDF</th>
<th>LCF</th>
<th>CK</th>
<th>HG-80</th>
<th>NLS-90</th>
<th>EMBULKER</th>
<th>MINERAL SEALS REPLACEMENT</th>
<th>OFC</th>
<th>OPF</th>
<th>AS</th>
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<td>MAIN FUNCTION</td>
<td>Developed specifically for automotive triple/poly foamers. Provides excellent foam coverage water solution that produces a high, dense, stable foam and rapid water break after rinsing. Developed specifically for automotive chassis protección. Provides a fast breakdown, resistant to hard surface deposits and excellent water bonding properties. Can be sprayed on wetlines prior to rinsing or prevent foam formation. Can be thickened to increase film flow.</td>
<td>Provides excellent foam coverage under aeration that produces a high, dense, stable foam and rapid water break after rinsing.</td>
<td>Superior water sheeting/shaving properties: ability to formulate to a wide range of actions. Replacement for mineral seal oil and petroleum distillates. Excellent film forming properties.</td>
<td>Effectively establishes a nonionic surfactant into highly alkaline/acidic systems. High foam, high alkaline/acid tolerance.</td>
<td>Provides enhanced cleaning, rinsing and thickening properties. Allows for cold process manufacturing (no heat required).</td>
<td>Green in-water emulsion that works with a wide range of solvents.</td>
<td>Provides rapid penetration and emulsification of oil/grease, wax &amp; particulate soils. Soil in-situ breakdown. Pump cleaners and foam boost formulations.</td>
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In developing M-5, our technical team determined the new acid replacement technology would offer certain benefits unmatched by traditional acid systems. In addition, M-5 would have to meet Vitech’s commitment to providing cost, performance and environmental benefits.

M-5 was created with the goal to optimize safety without sacrificing the performance benefits associated with the use of traditional acids in cleaning.

The List of Criteria

**Personal Safety** — To be of benefit, the new product had to be safer than most traditional acids. In particular, it needed to be safe for both the blender and the end-use consumer. This is especially important for the average consumer who is typically not aware of potential hazards associated with handling chemicals. Safety was measured by non-corrosivity to the skin.

**Performance** — For performance, our team determined that M-5 had to remove calcium and iron and be effective on a wide range of heavy metal oxides and salts. It needed to be more aggressive than the weak organic acids available and provide rapid cleaning in all types of applications. The added benefits of being odorless, non-fuming and non-foaming would also reduce the usual formulating challenges.

**Green Profile** — The product had to be readily biodegradable, have low aquatic toxicity and be eligible for green certification.

By directly addressing the criteria, our team created an acid replacement technology that effectively removes insoluble salts and is still safe on a variety of metals (including aluminum). M-5 is non-corrosive, non-irritating to skin and can be shipped non-regulated.

Q3 was created in response to our clients’ request that we develop a product that would work in a variety of formulations, be stable under different environments and outperform the cleaning capabilities of current products.

At the time, there was nothing available on the market that addressed those needs. So we responded with a quest to find a chemistry that would.

**Quest** — We determined that our surfactant must meet the following requirements:

- outstanding environmental profile
- superior wetting
- excellent detergency
- stability under different conditions (including peroxides, alkalis and acids)
- ability to reduce or eliminate solvents

To add to the complexity of the quest, the chemistry also had to have great versatility and create synergies with other chemical components to maximize cleaning efficiency. This would help eliminate or minimize the need for other components in formulations.

Minimizing Environmental Impact — Q-3 changed people’s perception that cleaners had to be harsh to work effectively. Indeed, our team created a superior green chemistry without sacrificing performance.

Q-3 has an outstanding environmental profile and is used to produce cleaners approved for Green Seal, Canadian EcoLogo and EPA’s Design for the Environment (DfE).

**Quantum Leap** — After countless hours of experimenting and testing, our team accomplished everything they set out to do with Q-3.

**Quality** — Proven to work in many applications, Q-3 continues to exemplify the same high standards it was originally designed to encompass: high performance, versatility, value, uniqueness and functionality.

Metal Safety — The product needed to rapidly solubilize metal salts and oxides, but not promote oxidation of base metals. Specifically, aluminum is a light metal that is extremely susceptible to acid oxidation, and M-5 would need to be safe on this material as well as traditional metals.

Shipping — A product that could be shipped non-regulated would provide customers with the benefits of lower handling and insurance costs. A material that could be shipped non-regulated via ground, air and marine would provide new opportunities.

**M5**

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The technical source for innovative solutions

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www.vitechinternational.com

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