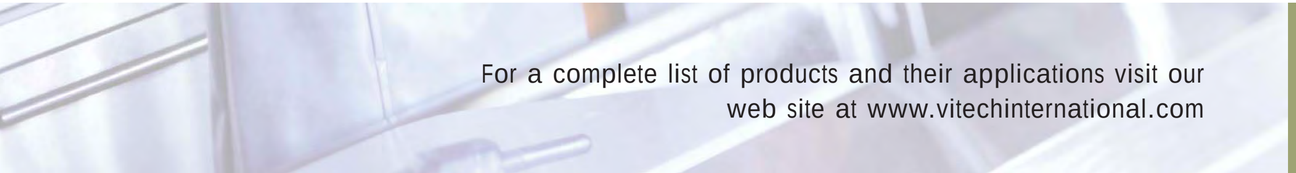
Vitech International Inc.

PRODUCTS

PRODUCT		DESCRIPTION	MAIN FUNCTION
DYNAMIC SURFACTANTS	Q-3	A readily biodegradable surfactant system. Q-3 contains no alkyl phenol ethoxylates. Outstanding environmental profile to create Green Seal, DfE and Cdn. EcoLogo approved products. Stable in acids, alkali and hydrogen peroxide. Compatible with nonionic, anionic, cationic surfactants.	A versatile surfactant that provides fast wetting and penetration of soils. Effective replacement of phenol ethoxylates and glycol ethers. Removes oily/greasy, waxy and particulate soils.
	QCV	A readily biodegradable surfactant system. QCV contains no alkyl phenol ethoxylates. Developed as a lower cost alternative to Q-3 for companies not seeking green certifications. Stable in acids, alkali and hydrogen peroxide. Compatible with nonionic, anionic, cationic surfactants.	A versatile surfactant that provides fast wetting and penetration of soils. Effective replacement of phenol ethoxylates and glycol ethers. Removes oily/greasy, waxy and particulate soils.
ACID REPLACEMENT TECHNOLOGY	BJS-I	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 ground as a non-regulated material.	Replaces traditional mineral and organic acids. 50-80% more effective at removing insoluble salts (Ca, Mg, beerstone, milkstone) than phosphoric, citric, and glycolic.
	M-5	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.	Replaces traditional mineral and organic acids. Safe on most metals, including polished aluminum. Effective at removing insoluble salts (Ca, Mg, beerstone, milkstone).
INHIBITORS	MSI/HNA	Proprietary additives for use with BJS-I. Vitech recommends HNA if Green Seal, DfE or Cdn. EcoLogo are required.	Minimizes potential discoloration of certain metals in spray 'n' wipe formulations containing BJS-I.
	1113	Unique acid inhibitor for use with BJS-I.	Developed for immersion formulations. Provides protection on galvanized metal and aluminum in formulations based on BJS-I.
GLASS AND MULTI SURFACE	AFA	An economical, silicone free, anti-fog additive for glass cleaner formulas.	Anti-fog additive that provides additional cleaning.
	EGM	A readily biodegradable surfactant for producing VOC free glass cleaners and multi-surface cleaners. Formulate without solvents, glycol ethers or ammonia. Produce glass and multi-surface cleaners for Green Seal, DfE, or Cdn. EcoLogo approval. Safe on plastics.	Ability to formulate at, or below, the cost of traditional solvent based glass cleaners. Can be diluted up to 250:1, evaporates quickly, and provides a streak/smear free performance.
SOIL RELEASE/ BARRIER PROTECTORS	DRP	An anionic polymer that creates a hydrophilic surface. Acid and alkaline stable.	DRP treated surfaces reduce soil adhesion and create surfaces that are easier to clean. Effective on glass, ceramics, acrylics, metals and more.
	IPB-4	A detergent polymer chelating system.	Developed for daily shower cleaners. Provides an invisible barrier that reduces hard water spotting, build-up and soap scum.
	RST	An optimized polymeric surfactant that creates a hydrophilic surface. Acid, alkaline and peroxide stable.	Reduces soil adhesion on surfaces. The reduced soil adhesion allows surfaces to remain cleaner for a longer period of time. Surfactant portion provides enhanced cleaning and optimum stability.



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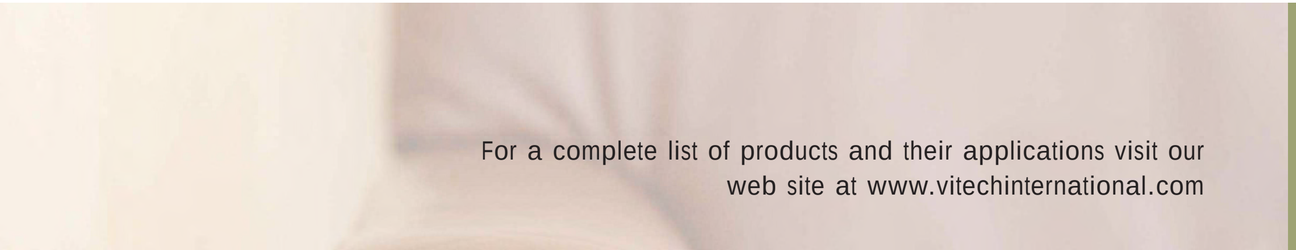
PRODUCT	Bathroom Cleaners	Carpet & Upholstery Care	Descalers	Dish/Ware Wash	Floor Care	Furniture/Wood Cleaners	Food & Dairy Cleaners	Glass Cleaners	Green Cleaners	Hand Cleaners	Hard Surface Cleaners & Degreasers	Kitchen Cleaners	Laundry Care	Marine & Boat Cleaners	Metal/Stainless Steel Cleaners & Polish	Microbial/Bacteria	Odor Control	Peroxide Cleaners	Printing Cleaners	Stone & Concrete Cleaners	Solvent Cleaners	Transportation Cleaners	Water Soluble Films & Wipes	PRODUCT
Q-3	●	●			●		●	●	●	●	●	●	●	●				●	●	●		●		Q-3
QCV	●	●			●		●	●		●	●	●	●	●				●	●	●		●		QCV
BJS-I	●	●	●	●			●	●	●		●	●		●	●					●		●		BJS-I
M-5	●	●	●	●			●	●	●		●	●		●	●					●		●		M-5
MSI/HNA	●		●	●			●	●	●		●	●		●	●					●		●		MSI/HNA
1113			●												●									1113
AFA	●							●																AFA
EGM	●				●			●	●			●		●	●							●	●	EGM
DRP	●							●						●								●		DRP
IPB-4	●							●																IPB-4
RST	●				●			●			●	●		●								●		RST

PRODUCT		DESCRIPTION	MAIN FUNCTION
FRICTIONLESS VEHICLE CLEANING	BFP	Polymeric surfactant 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.
	CSF/CSF-HC	Surfactant for producing transportation pre-soaks, detergents and wheel cleaners. Reclaim compatible. Compatible with nonionic, cationic and anionic surfactants. CSF-HC is for hyper-concentrates.	Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils. Formulate silicate free. Enhanced rinsing properties.
	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, wheel cleaners and engine degreasers. Reclaim compatible. Compatible with nonionic, cationic and anionic surfactants.	Penetrates and removes road film, brake dust, oily/greasy and carbonaceous soils.
THICKENERS	AT-LP	Lower pour point for ease of use.	Builds thixotropic viscosity in acids. Provides wetting, detergency and corrosion inhibition. Easy to solubilize.
	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 viscosity, foaming, wetting and detergency.
MICROBIAL/ BACTERIA	BACILOX	A series of non-pathogenic, bacillus-based bacterial blend.	Use Bacilox to speed the breakdown and degradation of organic matter. Comes in fully formulated and nonformulated liquid blends in 10x and 20x concentrations. Dried powder available in 10x, 50x and custom concentration blends.
	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. Excellent fit in parts washers and lift stations.
	QX-9	Readily biodegradable surfactant that contains no alkyl phenol ethoxylates. Outstanding environmental profile. Stable with LPB.	Provides fast wetting and soil emulsification properties for producing bacteria based cleaners and degreasers with LPB and/or Bacilox.
LOW/NO FOAMING	GAD	A naturally derived, low foam surfactant. Designed for autodish and rinse aid applications.	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.	Low foam profile at ambient and elevated temperatures. Formulated systems provide excellent detergency and good wetting.



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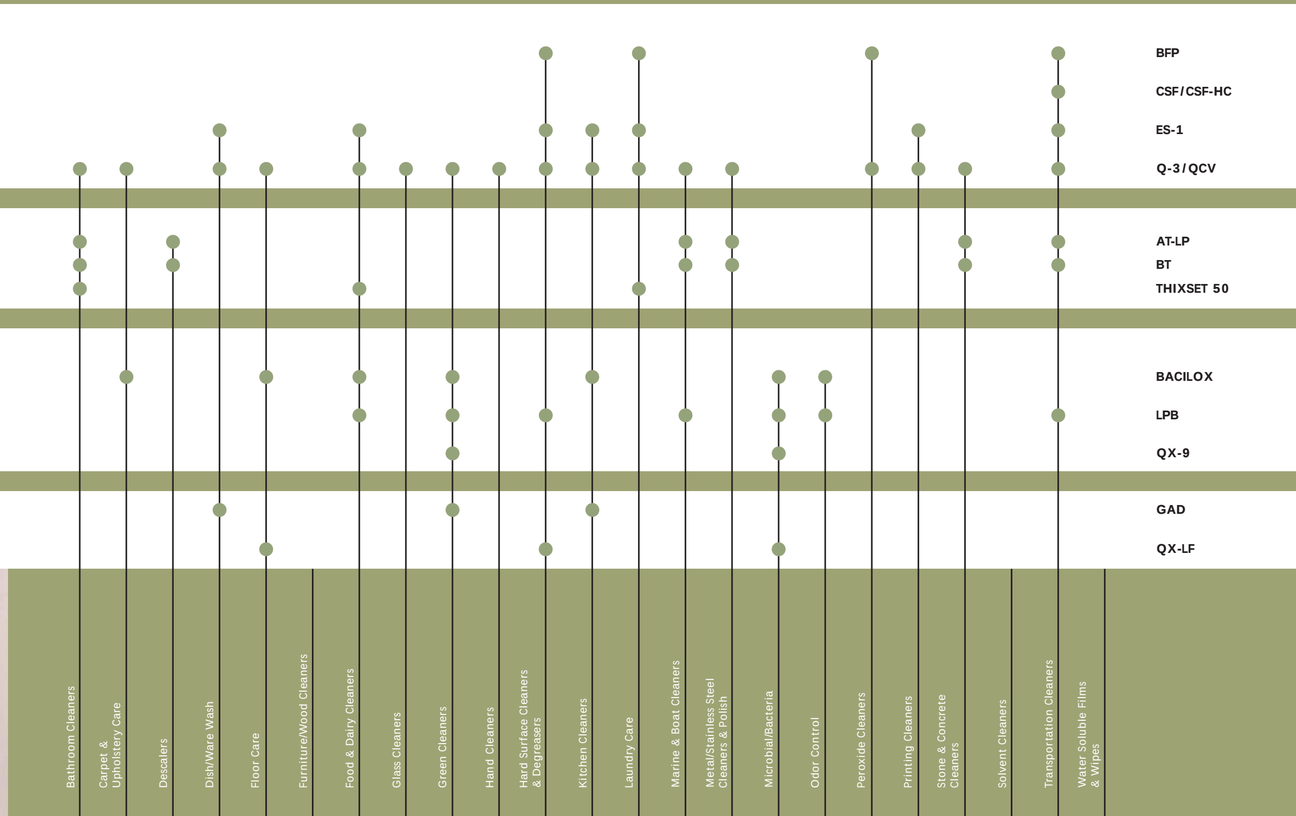
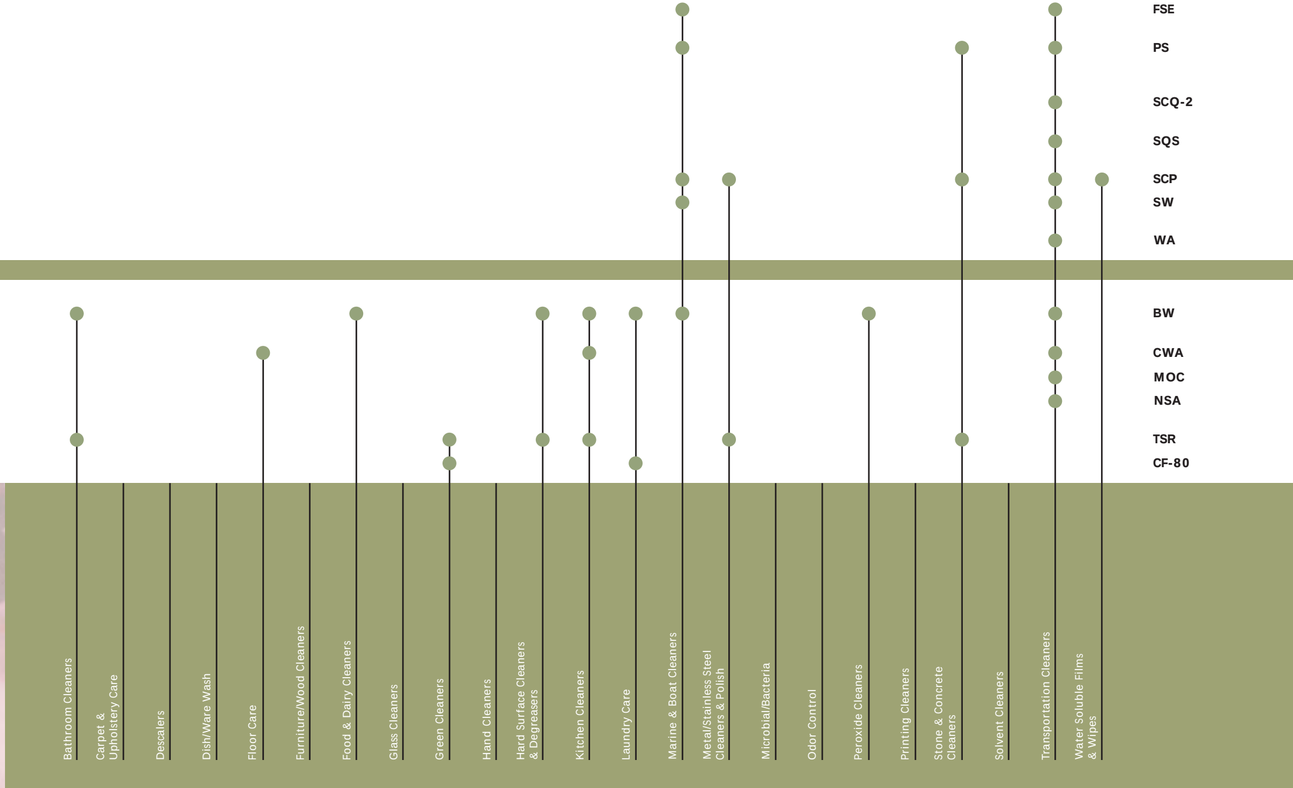


PRODUCT		DESCRIPTION	MAIN FUNCTION
SILICONE MODIFIED	FSE	A fluorinated silicone emulsion.	Provides enhanced gloss and water beading/sheeting for use in automobile spray 'n' shine products. Improves appearance of oxidized painted surfaces.
	PS	A modified silicone emulsion. Contains no VOCs.	Provides water repellency and enhanced gloss when used on granite, natural stone and synthetic countertops. Also an additive for vinyl and tire dressings.
	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.
	SQS	A silicone quaternary.	Enhanced water beading properties. Use in clear-coat protectorants, drying agents, sealer waxes, triple/poly foamers,wash 'n' wax and polishes.
	SCP	A modified silicone/surfactant.	Use in stainless steel cleaners, leather, furniture and stone polishes. Cleans and polishes in one step. Dries quickly and leaves no oily residue.
	SW	A high active, silicone modified, automotive wash and wax concentrate.	Provides rapid water beading properties upon rinsing. Enhances shine. Thickens upon dilution.
	WA	A modified silicone/surfactant.	Use in clear-coat protectorants, sealer waxes, triple/poly foamers, wash 'n' wax and windshield washer fluids. Provides superior water beading properties.
SPECIALTY	BW	Enhances whitening in percarbonate, peroxide and bleach systems.	Maintains whitening properties at lower bleach concentrations. Enhances detergency and soil re-deposition.
	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 100% active non-silicone additive for solvent based tire and vinyl dressings.	Provides gloss & durability. Use where silicones cannot be tolerated. Simply dilute with solvent.
	TSR	A powdered absorbent system for producing stain removers, polishes and cleaners.	Exceptional oil and grease lifting properties from porous substrates. Can be used on wood, asphalt, concrete, stone countertops and composite decking.
	CF-80	A naturally derived, cationic fabric softener.	For producing naturally derived, clear fabric softeners. Low odor.



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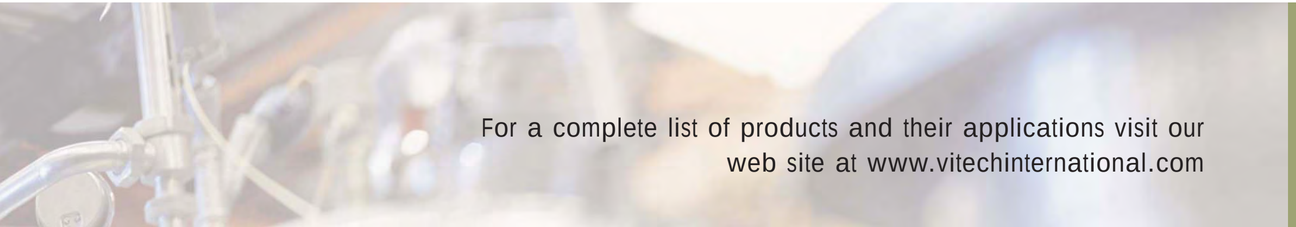
PRODUCT		DESCRIPTION	MAIN FUNCTION
VALUE ADDED	PF-2	A high foam cationic/nonionic surfactant.	Developed specifically for automotive triple/poly foamers. Provides excellent foam coverage under aeration that produces a high, dense, stable foam and rapid water break after rinsing.
	SMW	A silicone/surfactant blend.	Developed specifically for automotive clear-coat protectorants. Provides a fast break-foam profile for enhanced rinsing and water beading/sheeting properties.
	IS-50	Ready-to-use biodegradable de-icer.	Can be sprayed on windshields prior to icing to prevent ice formation. Can be thickened to increase cling time.
MINERAL SEAL OIL REPLACEMENT	OFC	A fully formulated automotive drying agent concentrate. Free of mineral seal oil.	Superior water sheeting/beading properties. Ability to formulate to a wide range of actives.
	OFS	A patented, synthetic hydrocarbon. VOC exempt. Low odor. Not a petroleum distillate.	Replacement for mineral seal oil and petroleum distillates. Excellent film forming properties.
HYDROTROPES	AS	An amphoteric coupling agent/hydrotrope. Compatible with nonionic, cationic, and anionic surfactants. Stable in acid and alkaline systems.	Effectively solubilizes/couples nonionic surfactants into highly alkaline/caustic systems.
	HIC-SF	Naturally derived, amphoteric hydrotrope.	High foam. High electrolyte tolerance.
HIGH FOAMING	HDF	A nonionic based surfactant for producing a high, dense, stable foam.	Provides additional detergency and wetting. Acid and alkaline stable.
	LCF	A high foam, anionic surfactant system. Excellent hard water stability.	Produces a shaving cream type foam in aerated systems. Provides excellent foam height, stability and detergency.
EMULSIFIERS	CK	Emulsifier for waterless hand cleaners.	Provides enhanced cleaning, rinsing and thickening properties. Allows for cold process manufacturing (no heat required).
	ME-80	A one component emulsifier to produce thermodynamically stable, pH neutral, solvent micro-emulsions.	Easy-to-use emulsifier that works with a wide range of solvents.
	NLS-90	A naturally derived, biodegradable surfactant. Stable in acids, alkaline and peroxide systems. Enzyme compatible.	Provides rapid penetration and emulsification of oily/greasy, waxy & particulate soils. For use in laundry detergents, pre-spotters, floor cleaners and hand dish formulations.
	NTS	An emulsifier/rheology modifier for solvent based emulsions.	Effectively emulsifies hydrophobic solvents (e.g., d-Limonene). Create thickened micro-emulsions for vertical cling when used with ME-80.



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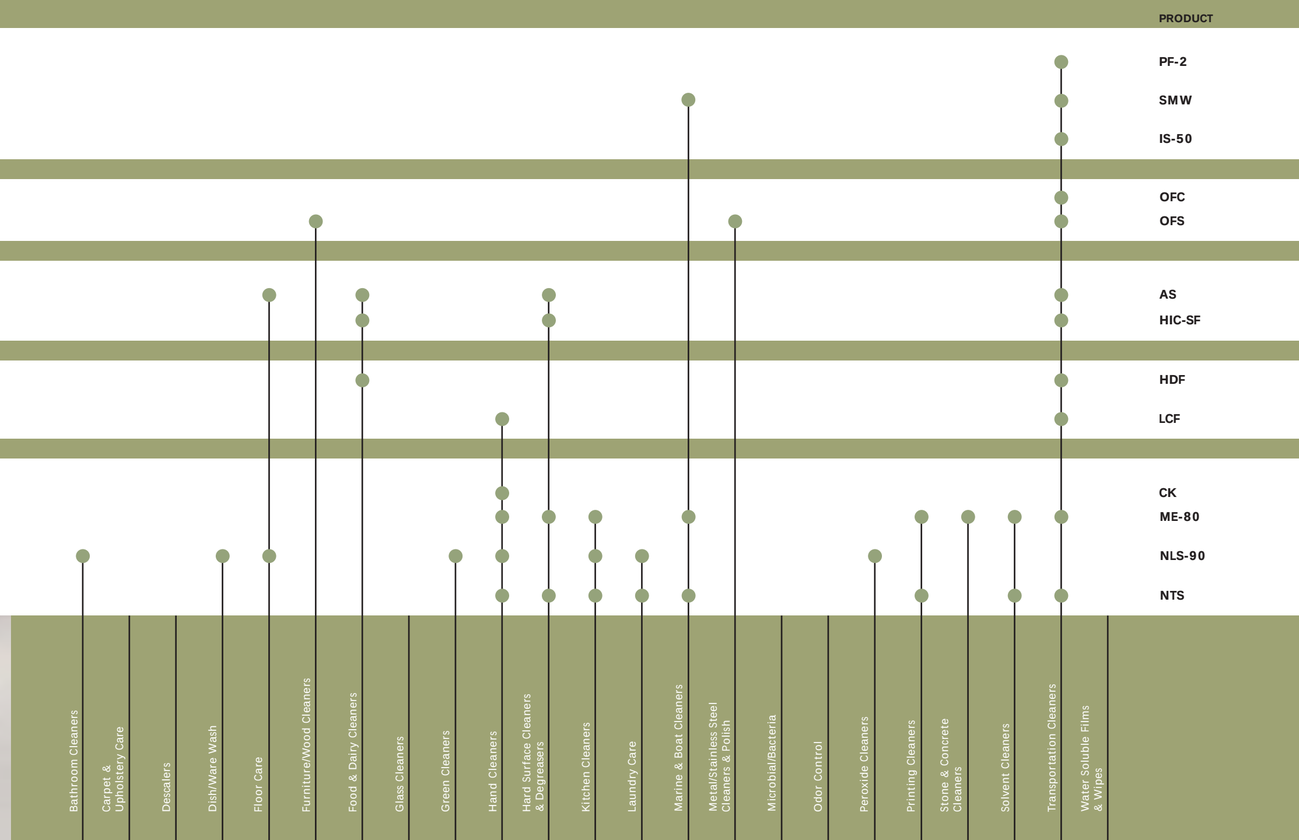

providing value, performance and environmental benefits

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.

M5

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.

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.

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.

high performance, versatility value, uniqueness & functionality

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. Instead, 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).

Q3

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.

The technical source for innovative solutions

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