



HARCROS

Oil & Gas Solutions

www.harcros.com

Harcros has spent the last several years focusing on specialty products for the Oil & Gas market. Harcros has positioned itself in the industry as the “go to” partner for development, drum size, scale-up, and full field implementation for various oilfield solutions. With seven manufacturing locations world-wide, Harcros can provide timely solutions where customers operate.

HQuest

Concrete Additives

Product Line	Composition	Application
H-Quest™ C 100	Crystalline Sodium Glucoheptonate (100%)	Used in formulating cement retarders. The higher thermal stability of H-Quest™ C 100 allows formulated cement retarders to be stable above 200°C (400°F). Additionally, it produces a permanent increase in the cement volume, increased compressive strength, increased plasticity, and inhibits corrosion of the metal used in reinforced concrete.
H-Quest™ L 50	Liquid Sodium Glucoheptonate (50%)	Used in formulating cement retarders. It produces a permanent increase in the cement volume, increased compressive strength, increased plasticity, and inhibits corrosion of the metal used in reinforced concrete.
H-Quest™ Calcium Glucoheptonate	Calcium Glucoheptonate (38%)	Used in formulating cement retarders. H-Quest™ Calcium Glucoheptonate acts as a dispersant for concrete particles. Additionally, it produces a permanent increase in the cement volume, increased compressive strength, increased plasticity, and inhibits corrosion of the metal used in reinforced concrete.

Chelating Agents

Product Line	Composition	Application
H-Quest™ HEDTA	Hydroxyethyl Ethylene Diamine Triacetate (45%)	A chelating agent with unique properties. Ideal for Fe ⁺³ , control at low pH conditions (pH 8-10) where other chelants are less soluble. Applications include: scale-removal and prevention, water treatment, polymerization, and formulation of cleaning products.
H-Quest™ TSS	Trisodium Sulfosuccinate (50%)	An aqueous solution of Trisodium Sulfosuccinate. TSS is more effective in chelating polyvalent ions (Ca ⁺² /Mg ⁺² etc.) in polyacrylamide systems versus carboxylate based chelants.
H-Quest™ C 100	Crystalline Sodium Glucoheptonate (100%)	Sodium glucoheptonate provides superior binding performance in the pH range 9 to 14. Forms stable chelates with di- and tri-valent metal ions such as Ca ⁺² , Mg ⁺² , Fe ⁺² , Fe ⁺³ , Zn ⁺² , Al ⁺³ , etc. Exceptional chelant for multi-valent iron. Alpha crystal form.
H-Quest™ L 50	Liquid Sodium Glucoheptonate (50%)	Sodium glucoheptonate provides superior binding performance in the pH range 9 to 14. Forms stable chelates with di- and tri-valent metal ions such as Ca ⁺² , Mg ⁺² , Fe ⁺² , Fe ⁺³ , Zn ⁺² , Al ⁺³ , etc. Exceptional chelant for multi-valent iron. Alpha/Beta blend.

Soap Stick Bases

Product Line	Composition	Application
T-Det® N 100	Nonylphenol Ethoxylate	Used as a base in the formulation of soap sticks. Low glycol content, higher crystallinity, sold as a solid, flake or powder.
T-Det® PEG 4000	High Molecular Weight Polyethylene Glycol	Used as a base in the formulation of soap sticks. Low glycol content, higher crystallinity, sold as a solid, flake or powder.
T-Det® PEG 8000	High Molecular Weight Polyethylene Glycol	Used as a base in the formulation of soap sticks. Low glycol content, higher crystallinity, sold as a solid, flake or powder.

Foaming Agents

Product Line	Composition	Application
Foamer CD	Anionic Surfactant	Used extensively in air mist drilling to produce high, stable foams under a variety of conditions. It reduces the surface tension and is effective in fresh water and salt water. It can be used in gas well stimulation, as an aid in cleaning out disposal and water wells, and to aid in water recovery from drowned gas wells.
Foamer HS	Hydroxysultaine	Cocamidopropyl hydroxysultaine amphoteric surfactant used in a variety of applications, including formulation of drilling foam bases, foam flooding and gas well unloading.

Defoamers & Demulsifiers

Product Line	Composition	Application
	Alkylphenol-Formaldehyde Resins (Ethoxylated)	Used as a foam control aid and foam suppressant in a variety of oil-field applications. e.g. drilling, cementing, and production operations.
	Arylphenol-Formaldehyde Resins (Ethoxylated)	APEO-Free products used as a foam control and foam suppressant in a variety of oil-field applications. e.g. drilling, cementing, and production operations.
T-Det® EPO-Series	Difunctional/Trifunctional High Molecular Weight Polyethylene-Polypropylene Copolymers	Used as foam control aids and as pour point suppressants for improved product efficiency at sub-zero temperatures.
Venamine™ Series	Polyamine Alkoxylates	Dewatering crude oil.

Emulsifiers

Product Line	Composition	Application
T-Det® A-Series	Fatty Alcohol Ethoxylates/Alkoxylates	APEO-Free ethoxylates/alkoxylates that provide excellent emulsion stability for drilling muds that require oil-in-water or invert emulsions.
T-Det® N-Series T-Det® O-Series	Alkylphenol Ethoxylates	Nonylphenol and Octylphenol ethoxylates provide excellent emulsion stability for drilling muds that require oil-in-water or invert emulsions.

Corrosion Inhibitors

Product Line	Composition	Application
T-Det® DTSS-Series	Di-Tridecyl Sodium Sulfosuccinate	Used in combination with petrolatum, lanolin, and kerosene in rust-preventative formulations. Offered in multiple solvents at various levels of activity.
T-Det® EPO-Series	Polyethylene-Polypropylene (EO-PO) Copolymers	100% active product line used as an extremely versatile corrosion inhibitor base; offers high detergency and acts as an excellent filming agent. Viable for both oil soluble and water soluble formulations.
Vendecor™ Series	Oleyl Imidazoline	>80% active imidazoline used to formulate corrosion inhibitors employed in production, drilling, transportation and refining. It can be formulated with organic and inorganic acids to form water soluble salts for use as rust preventers, emulsifiers, wetting agents and scale inhibitors.
Venamine™ Series	Fatty Amine & Diamine Ethoxylates	100% active products used as an extremely versatile corrosion inhibitor bases. Offers high detergency and acts as an excellent filming agent. Viable for both oil soluble and water soluble formulations.

Solubilizers

Product Line	Composition	Application
T-Det® GMO	Glyceryl Mono-Oleate	Used as a solubilizer to reduce impurities in diesel for friction reduction and improve fuel efficiency.
T-Det® GTO	Glyceryl Tri-Oleate	Used as a solubilizer to reduce impurities in diesel for friction reduction and improve fuel efficiency.

H₂S Scavengers

Product Line	Composition	Application
Vendecor™ Series	Monoethanolamine-Triazine (70%, 55%, 40%)	Used as a scavenger for H ₂ S gas in oil and natural gas extraction.

Lubricants & Lubricant Additives

Product Line	Composition	Application
T-Mulz® Series	Di-Alkyl Phosphate Esters	Anti-wear additive for the formulation of gear oils, metal working fluids, and industrial lubricants.
T-Mulz® Series	Alcohol Ethoxylate Phosphate Esters	Dispersing additive that improves the water dispersibility of various lubricants in lubricant preparations.
	Butyl Oleate	Synthetic lubricant
	2-Ethylhexyl Oleate	Synthetic lubricant

Flowback Aids

Product Line	Composition	Application
T-DeT® A 91-Series	C9-11 Alcohol Ethoxylates	Alcohol ethoxylates added to stimulation treatments to reduce capillary pressure and water blocks. (APEO Free)
T-DeT® A 13-Series	iso-C13 Alcohol Ethoxylates	Alcohol ethoxylates added to stimulation treatments to reduce capillary pressure and water blocks. (APEO Free)
T-DeT® 2P-Series	2-propylheptanol Ethoxylates	Ethoxylated 2-propylheptanol added to stimulation treatments to reduce capillary pressure and water blocks. (APEO Free)
T-DeT® N-Series	Nonylphenol Ethoxylates	Nonylphenol ethoxylates added to stimulation treatments to reduce capillary pressure and water blocks. Recommended product: T-DeT® N 10

Enhanced Oil Recovery (EOR)

Harcros has spent the last several years focusing on specialty surfactants for EOR applications. The typical Harcros EOR surfactant is capable of reducing interfacial tension at the surface of an oil droplet to ultra-low levels (<10⁻⁴ dynes/cm). This unique technology is the subject of several, global Harcros patents. The efficacy of these built-for-purpose surfactants stems from the presence of a large hydrophobe, relatively large blocks of ethylene oxide and propylene oxide [(EO)₂₀₋₄₅(PO)₂₀₋₄₅] and an electrolyte tolerant end-capping group. These Harcros surfactants may be used for both ASP and SP technologies.



Enhanced Oil Recovery

Product Line	Composition	Application
Emulzymer® Series	Proprietary	Chemical Enhanced Oil Recovery

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