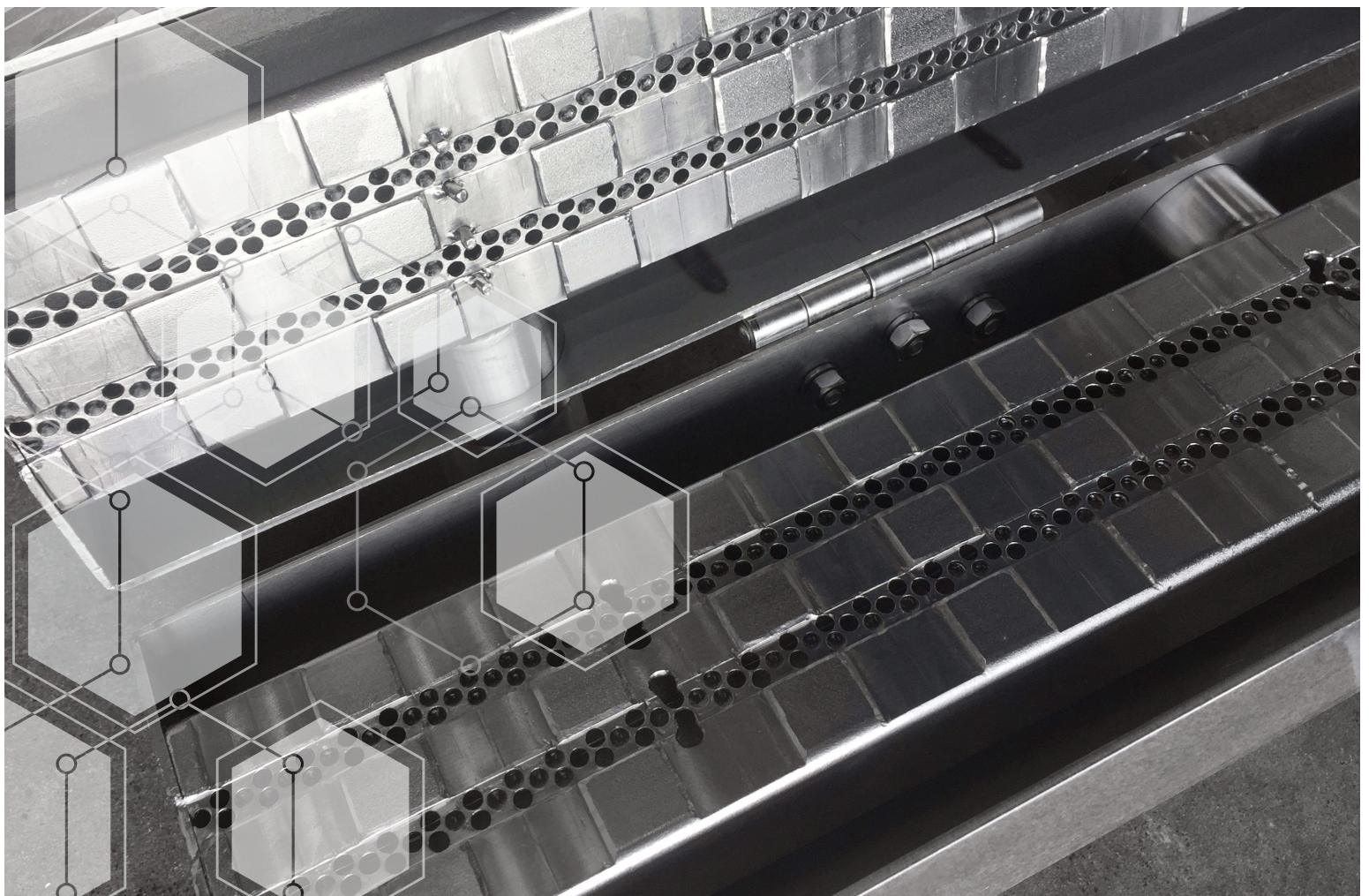


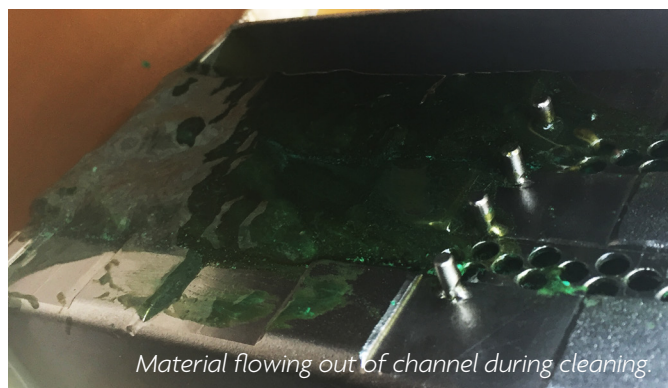
PARATENE®

# Degreasers

Each Paratene® degreaser is designed with a specific task in mind.

CleanHarbors®





# What is a Degreaser?

**Degreasers are chemical cleaning agents that are used to remove dirt, dust, grease, oil, wax and asphaltic hydrocarbons. Degreasers may also be used as antimicrobial agents, or to remove odors, knockdown vapours and toxic gases; they may act as dispersant or carrying agents, and some serve to encapsulate unwanted particles for safe and effective removal.**

Degreasers are often a mixture of several different types of compounds. Surface active agents (surfactants) work to disrupt the interface between two solid interfaces (scale and metal surface) or the solid-liquid interface. Chelating agents (chelants) remove disruptive metal ions preventing redeposit, as well as potential counter interactions of ions in the water. Builders, and/or coupling agents, are added to improve and protect the cleaning efficiency of the surfactants. Solvents, such as water and/or organic solvents, are often active ingredients in the cleaning process, adding to the detergency and pulling the soil particles away from the surface.

## Paratene® D728

### Water-Based Degreasing

Paratene® D728 is a first generation water-based degreaser designed to remove hydrocarbon fouling from process equipment. Paratene® D728 is an alkaline blend of specialty surfactants that is low in toxicity, non-flammable and non-corrosive to base metals. Paratene® D728 reduces the potential for release of H<sub>2</sub>S and SO<sub>2</sub>.

Paratene® D728 is a versatile product designed to be a ready-to-use degreasing system, and may be combined with other Paratene® products for additional cleaning capacity.



## Paratene® D707

### Multi-Purpose Degreaser

Paratene® D707 is a second generation degreaser, which was designed to pick up where Paratene® D728 falls off. Paratene® D707 is a phosphate-free alkaline degreaser with extremely low toxicity. This blend is non-flammable and non-corrosive to base metals, and has an extremely low ecotoxicity, simplifying disposal. Paratene® D707 reduces the potential for release of H<sub>2</sub>S and SO<sub>2</sub>.

Paratene® D707 is a concentrated degreaser and must be diluted prior to use, and may be combined with other Paratene® products to meet site-specific challenges. Paratene® D707 can be applied using standard chemical cleaning techniques, such as spraying, cascading and circulating. Paratene® D707 is also highly effective when combined with ultrasonic technology, or gamma jetting.

## Paratene® D731

### Solvent-Based Degreaser

Paratene® D731 is a versatile solvent-based degreasing system designed to meet the challenges of both heavy hydrocarbon blends, and light volatile hydrocarbons which can be a source of hydrocarbon vapour. Paratene® D731 aggressively attacks hydrocarbon fouling without damaging metal surfaces, leaving them water wet.

Paratene® D731 is a concentrated degreaser that is mixed with water, alkaline or acidic solutions to create an emulsified blend which can carry hydrocarbons and solids while circulating and may be combined with other Paratene® products to meet site-specific challenges. Once complete, the solution separates into two layers, allowing hydrocarbons to be recovered. The remaining solution is low in toxicity, simplifying the disposal. Paratene® D731 can be applied as a cascading or circulating chemical.

## Specialty Surfactants

## Paratene® D708

### Decoking Degreaser

Paratene® D708 was designed specifically to deal with coked, the form of Charcoal, Coke and Carbon Black Powder, often agglomerate in the equipment and are a major source of tube plugging and flow reduction in refinery equipment.

Paratene® D708 is an alkaline blend of specialty surfactants that is low in toxicity, non-flammable and non-corrosive to base metals. The alkalinity of the solution reduces the potential for release of toxic dissolved gases, such as H<sub>2</sub>S and SO<sub>2</sub> which are often present where coke fouling occurs. The blend is highly effective in the removal of hydrocarbons, and has been shown to encapsulate coke particles and carry them in solution.

## PARATENE® Degreasers

Paratene® D708 is designed to be used in conjunction with ultrasonic technology to aid in the breakdown of the coke agglomerates, so they can be carried in the solution. Paratene® D708 is a concentrated degreaser that is mixed with water or acidic solutions, and may be combined with other Paratene® products to meet site-specific challenges.

### Paratene® D734-OC

#### Vapour Suppression

Paratene® D734-OC was designed specifically to knockdown hydrocarbon vapour in tanks and vessels where entry may be necessary, or LELs pose a risk of fire or explosion. The encapsulation technology in Paratene® D734-OC rapidly binds and contains volatile hydrocarbons which contribute to hydrocarbon vapour, as well as H<sub>2</sub>S, SO<sub>2</sub> and mercaptans. Paratene® D7034-OC is an alkaline blend of specialty surfactants that is low in toxicity, non-flammable and non-corrosive to base metals.

Paratene® D734-OC is mixed with water or alkaline solutions to form a cleaning solution which is applied as a spray or mist, at room temperature, to knockdown LELs, H<sub>2</sub>S and other toxic or flammable gases and vapours. Paratene® D734-OC may also be applied undiluted to heavily fouled surfaces when aggressive knockdown is required for entry into vessels and tanks. Paratene® D734-OC may be combined with other Paratene® products to meet site-specific challenges. Consultation with the Clean Harbors Specialty Chemicals laboratory is highly recommended to prevent antagonistic blends.

### Vapour Phase Degreasing

Vapour Phase degreasing is a cost effective method for cleaning refinery equipment for the removal of hazardous. In the vapour phase cleaning process, the chemicals are carried as a mist in the steam. When the steam hits the cooler metal surfaces, condensation occurs, to apply the chemical directly to the metal. This allows for effective removal of hazardous material in vessels, tanks and towers, rendering them inert and safe for entry.

### Paratene® D740

#### Degreasing Surfactant

Paratene® D740 is a blend designed to act as a mild oxidizing agent to aid in the removal of hydrogen sulfide and pyrophoric iron compounds, while emulsifying hydrocarbons when applied in hot steam from process equipment and tanks.

Paratene® D740 is paired with alkaline additives, such as trisodium phosphate and sodium hydroxide, to improve removal of H<sub>2</sub>S from sour systems. Paratene® D740 is also compatible with acidic solutions, and serves as an additive to improve wetting of deposit surfaces through oxidative processes. Paratene® D740 may also be combined with H<sub>2</sub>S scavengers to substantially improve removal of hydrogen sulphide.

### Paratene® D742

#### Microemulsion Degreaser

Paratene® D742 is a unique blend of surfactants and solvents designed to aid in the removal of hydrocarbon contaminants from process equipment. Paratene® D742 acts to wet metal surfaces and emulsify hydrocarbons within a steam line, where water or surfactants alone are not effective. Paratene® D742 contains no inorganic compounds and is completely soluble in water.

Paratene® D742 is mixed with water or alkaline solutions to form a cleaning solution which is applied as a spray or mist within a steam line. Paratene® D742 is paired with alkaline additives to improve hydrocarbon removal rates up to 20%.

APPLICATION	D728	D707	D731	D708	D734-OC	D740	D742
Heated Dip Tank	✓	✓	✓	✓	✓	✗	✗
Cascading	✓	✓	✓	✓	✓	✓	✗
Circulation	✓	✓	✓	✓	✓	✓	✗
Spray or Mist	✓	✓	✗	✓	✓	✓	✗
Steam Injection	✗	✗	✓	✗	✗	✓	✓
Gamma Jet	✓	✓	✓	✓	✓	✓	✗
Ultrasonic	✓	✓	✗	✓	✗	✓	✗

MATERIAL	D728	D707	D731	D708	D734-OC	D740	D742
Light Hydrocarbon	✓	✓	✓	✓	✓	✓	✓
Heavy Hydrocarbon	✓	✓	✓	✓	✓	✓	✓
Paraffin	☎	☎	☎	☎	☎	✗	☎
Asphaltene	☎	☎	☎	☎	☎	✗	☎
Coke	✗	✗	✗	✓	✗	✗	✗
Iron Sulphide	✗	✗	✗	✗	✗	✓	✗
Hydrocarbon Vapour	✗	✗	✓	✗	✓	✓	✓
H <sub>2</sub> S	✓	✓	✓	✓	✓	✓	✓



☎ Call Clean Harbors Specialty Chemicals for more information.



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