



Smart Environmental Inc

HEAVY DUTY DEGREASER CONCENTRATE

Surfactant Based Cleaner/Degreaser (Non-Butyl)

Heavy Duty Degreaser Concentrate is a surfactant based aqueous cleaner/degreaser that chemically emulsifies anything organic such as grease, oil, ink, coolants etc. HD is designed for precision parts cleaning and meets the highest standards set for material compatibility, environmental, health and safety. HD can be used in heated parts washers or any hand wiping application without leaving any residue.

HEAVY DUTY DEGREASER CONCENTRATE ...

- ▶ Quickly removes grease, oils, carbonaceous soils and other soils.
- ▶ Leaves no residue after rinsing to avoid conductivity problems in motor windings. Will not attack electrical insulation and varnishes.
- ▶ Contains no hazardous ingredients, glycol ethers, and environmentally safe.
- ▶ No HAPS (V.O.C. >25g/l)
- ▶ Doesn't contain any chelating ingredients such as EDTA, phosphates, caustics or chlorinated solvents.
- ▶ Cleaner / degreaser designed to remove organics from any surface compatible with water
- ▶ Contains no silicone to interfere with new coatings or paint.
- ▶ Safe for use on CNC machines and can be used near coolant without causing fowling or corrosion inhibitor breakdown.

Use Instructions

Designed for use in Spray & Wipe, Bucket & Rag, Parts Washer, Soak, Dip, Immersion Tanks, Ultrasonic, Pressure Washer / Power Sprayer, Steam Cleaner and mop & Bucket

FOR LIGHT TO MEDIUM DUTY CLEANING: Use at 10:1 to 30:1

FOR HEAVY DUTY CLEANING: Use at 2:1 to 7:1

Clean at 105°F and provide sufficient agitation

Technical Data

Form Liquid
 Color Clear
 pH (use dilution) Approximately 8.9

What is SMART Heavy Duty Degreaser Concentrate?

SMART Heavy Duty Degreaser is a non-hazardous, water based, detergent blend that does not contain any chelating ingredients such as EDTA, phosphates or chlorinated solvents.

What does it clean?

This product is a cleaner / degreaser designed to remove organics from any surface compatible with water. Organics (materials originating from the chemical element carbon) originate from people/animals, plants and petroleum.

- Grease
- Oil
- Hydraulic Fluid
- Cutting Fluid
- Fuel
- Dirt & Grime
- Carbon
- Ink
- Extruding Oil
- Lubricants

On what surfaces can I use Heavy Duty Degreaser?

SMART Heavy Duty Degreaser may be used on nearly any surface compatible with water. Some examples include:

- Acrylic
- Aluminum
- Aluminum Alloys
- Rubber
- Brass
- Bronze
- Carbon Steel
- Concrete
- Painted Surfaces
- Plastics
- Stone, Brick, Masonry
- Tin
- Stainless Steel
- Titanium
- Viton
- Vinyl

On surfaces finished with materials that may have hydrocarbon components, such as paint, varnish, wax, etc., we recommend that the user test the surface before using SMART Heavy Duty Degreaser.

How is SMART Heavy Duty Degreaser different from other cleaners?

Unlike traditional cleaners such as high alkaline or solvent, SMART uses the power of water. This technology is safer for the material being cleaned, the environment and the worker.

SMART Heavy Duty Degreaser is an aqueous (water based) cleaning product. Normally, many sticky soils, such as oil, cannot be solubilized (suspended in solution with) water. This is the origin of the adage “oil and water don’t mix”. SMART makes water “wetter”, allowing water to penetrate chemical structures that would normally repel water, and allowing water to go into suspension with normally non-soluble materials.

SMART Heavy Duty Degreaser allows water to break the sticky bonds between soils and surfaces, allowing them to be safely rinsed or wiped away. By using Water Works, water becomes the final cleaning agent. **Who uses SMART Heavy Duty Degreaser?**

Anyone who needs to remove organic soils can use this product, whether rebuilding a carburetor, mopping a floor or cleaning a jet engine. SMART is an equal opportunity cleaner; so if you are trying to remove oil, grease, carbon or other organics, SMART Heavy Duty Degreaser will work for you.

Some common industries where SMART Heavy Duty Degreaser is in use include:

- Aerospace / Aviation
- Agriculture & Farming
- Automotive Manufacturing & Repair
- Construction
- Electronics
- Food Manufacturing / Processing
- Forestry / Timber
- Health Care & Nursing Homes
- Oil & Lubricants
- Janitorial
- Marine
- Metal Fabrication
- Mining
- Municipal Services
- Nuclear Power
- Printing
- Performance Racing
- Pulp & Paper
- Restaurant & Hospitality
- Railroad
- Schools, Colleges & Universities
- Transportation & Fleet Maintenance
- Utilities
- Warehousing & Material Handling

What type of cleaning activities use SMART Heavy Duty Degreaser?

- CNC Machine Cleaning
- Component Disassembly & Cleaning
- Compressors
- Condensers
- HVAC
- Chillers & Coils
- Conveyance Equipment (belts, bearings, rollers, etc)
- Drive Train & Engine Teardown
- Equipment Maintenance & Inspection
- Food Processing / Storage Equipment
- Interior / Exterior Appearance
- Metal Cutting, Bending, Forming, Shaping, Drilling, Stamping or Extrusion
- Plastic Extrusion, Molding, Forming
- Surface Preparation for Painting, Sealing, Coating, Etc.
- Transmission & Carburetor Teardown
- Underground Storage Tank Cleaning
- Wheel & Brake Assembly

What are the methods of application?

- Spray & Wipe
- Bucket & Rag
- Parts Washer
- Soak, Dip, Immersion Tanks
- Ultrasonic
- Pressure Washer / Power Sprayer
- Steam Cleaner
- Mop & Bucket

How do you use the product?

There are four components involved in efficient cleaning with an aqueous technology. They are:

- Time
- Agitation
- Concentration
- Temperature

Or, TACT, for short. By adjusting these variables to optimum value, the performance of an aqueous cleaning solution can be maximized.

Time

The longer the cleaning solution remains in contact with the soil, the more cleaning efficiency you will get from the cleaner. This is commonly called dwell time.

Agitation

The addition of kinetic energy (movement) to the cleaning process aids any cleaning activity. Common forms of agitation include brushing, scrubbing, wiping, spraying, or even a flow of fluid across a surface.

Concentration

Most aqueous cleaning technologies are designed to be diluted with water to deliver cost savings. Often, the more concentrated (also described as less dilute) the product used, the better the cleaning efficiency. In the case of SMART Heavy Duty Degreaser, this is usually the case. However, some applications will require a less concentrated (more dilute) solution for better performance, i.e. ultrasonic applications.

Temperature

As in the case of kinetic energy, the addition of caloric energy (heat) can make cleaning more efficient. As with any water based cleaner, including your washing machine or dishwasher at home, warmer water will improve cleaning performance.

What are the dwell time parameters?

For wipe applications, we recommend applying the product and allowing at least 10-15 seconds so the product has a chance to emulsify the soil. In general, the longer the dwell time, the less agitation will be required. Please ensure that the surface stays wet while the product loosens deposits.

For soaking and dipping applications, timing is generally from 10 to 30 minutes. More difficult soils and encrusted deposits may take longer.

What are the concentration parameters?

Below are some basic concentration suggestions; we encourage you to try several dilutions to find the precise concentration for your specific cleaning needs.

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|-------------------------|----------------------|
| • Spray & Wipe | Full strength to 5:1 |
| • Bucket & Towel | 2:1 to 5:1 |
| • Parts Washing | 2:1 to 4:1 |
| • Soak / Dip Tanks | 2:1 to 6:1 |
| • Ultrasonic Cleaning | 8:1 to 10:1 |
| • Pressure Washing | 10:1 to 20:1 |
| • Steam Cleaning | 40:1 |
| • Mop & Bucket Cleaning | 20:1 |

What are the temperature parameters?

Please keep in mind that SMART Heavy Duty Degreaser is a water-based technology, and will evaporate like water. Increased temperatures will increase the rate of evaporation. Use caution when working with extremely elevated temperatures. Do not exceed manufacturer's recommended temperature for your equipment.

We recommend using SMART Heavy Duty Degreaser at:

- Spray & Wipe - Ambient
- Bucket & Towel - Ambient to 105°F
- Parts Washing - 105° to 110°F
- Soak / Dip Tanks - 105° to 180°F
- Ultrasonic Cleaning - 110 to 150°F
- Pressure Washing - Ambient to 180°F
- Steam Cleaning - As directed by equipment manufacturer
- Mop & Bucket - Ambient to 105°F

What kind of results can I expect with SMART Heavy Duty Degreaser?

SMART Heavy Duty Degreaser will leave a clean, film free surface. There is no oily residue like with solvent cleaning, or alkaline deposits from a high alkaline product. SMART Heavy Duty Degreaser will not attack the surfaces it is cleaning

What are the storage parameters?

SMART Heavy Duty Degreaser is water based technology, and will freeze like water. We recommend protecting the product from extreme high or low temperatures and do not store in direct sunlight. If the product freezes, allow to thaw completely and mix thoroughly. Since SMART Heavy Duty Degreaser is non-hazardous, it does not require any special permitting to store in your facility.

What is the shelf life?

SMART Heavy Duty Degreaser guaranteed shelf life is 5 years, though practical experience has demonstrated much longer.

How do you dispose of SMART Heavy Duty Degreaser?

Waste disposal is a necessary part of cleaning. The points to remember when considering waste are:

- He who controls the hazard, owns the risk
- Where you are located determines the guidelines
- If you have a hazard, you have responsibility
- The responsibility never goes away. If you are currently using a hazardous product, your responsibility for what happens to it does not end when it is hauled from your facility. We would like to assist you in reducing or eliminating your hazardous responsibility.

SMART Heavy Duty Degreaser is not hazardous when you bring it into your facility, so it is only what you are putting into the solution that could cause waste issues. Please keep in mind that if you pre-clean a part with a hazardous product (i.e. brake cleaner) and then rinse in your parts washer, you have contaminated your unit and the waste will reflect the hazardous product. By federal standards, unused SMART Heavy Duty Degreaser is sewer disposable.

We recommend that you have a sample of your used fluid analyzed by an independent lab. Then contact your state agency to determine disposal options and requirements. Often times, a waste hauler that you are currently using for other waste streams (such as used oil) will be able to assist you. Your used SMART Heavy Duty Degreaser waste should be less expensive to dispose of than solvent or other hazardous waste streams.

Alternative options to waste hauling (subject to local, county, state and federal regulations) include:

- Discharge to local waste water treatment facility
- Utilize waste fluid in other on-site applications, such as pressure washing or floor cleaning
- Utilize waste fluid in other third party processes that may qualify as a recycling procedure
- Evaporation or minimization
- On-site treatment

Does my cleaning process have to change to use SMART Heavy Duty Degreaser?

That depends on your current cleaning process, including products and equipment used, as well as the various steps in the process. There are four major areas to evaluate in answering this question:

Product Technology

If you are converting from a solvent product to an aqueous cleaner, you can expect to make adjustments to both equipment and cleaning processes. Often, equipment designed for use with solvents is incompatible with aqueous technologies. Drying is also often an area that requires modification.

If you are converting from a high-alkaline chemistry to Water Works, you can reasonably expect to need to make some minor adjustments to equipment, but probably not process.

Equipment Construction

Aqueous cleaners work best when used with equipment constructed of stainless steel, polyethylene or polypropylene. Carbon steel or mild steel construction will eventually corrode, most often due to water vapor being generated above the liquid level by heated equipment.

Corrosion Management Practices

SMART Heavy Duty Degreaser contains an advanced corrosion protection package that has proven to be effective at managing corrosion in the majority of applications. However, as a water-based product, some attention to corrosion management is appropriate.

Solvent cleaners typically “flash dry”, that is, they evaporate (volatilize) very quickly in air. Unlike these solvents, aqueous cleaners usually dry at about the same rate as water. Under some circumstances, this increased dry time can lead to potential corrosion issues and may require adjustments to process.

SMART Heavy Duty Degreaser also cleans to a film-free surface. Most solvents and high-alkaline formulations leave behind a film or residue which often “accidentally” act as a corrosion barrier. Users of SMART Heavy Duty Degreaser should be aware that cleaned parts are cleaned to “bare metal” and are therefore exposed to the environment. Extra care as to environmental or storage condition may have to be exercised. Parts that go immediately to painting, packaging, etc., do not usually present a concern.

Dilution Maintenance

Aqueous cleaners are usually sold as a concentrate, designed to be diluted with water before use. The degree of dilution appropriate for your application will be determined based on four points:

1. Cost - The more dilute, the less it costs to use the product
2. Method of Application - Example: spray & wipe vs. parts washer
3. Product Performance - How fast the product cleans
4. Corrosion Management - The more dilute, the less efficient the corrosion protection

Once the proper dilution level is determined, you will want to exercise some care to maintain this dilution level to ensure consistent, efficient and cost effective cleaning. SMART Heavy Duty Degreaser recommends that product be prepared for use at the proper dilution ratio outside of the use container, using some method to ensure accuracy. “Eyeballing” and “guesstimating” are typically not recommended dilution methods.

Your cleaning application may also be sensitive to changes in dilution. This is common in parts washing applications. Fluid in a heated parts washer will evaporate, and will also “drag out” (small amounts of fluid still left on or in parts) in the course of normal use. For this reason, we again recommend that make-up fluid be pre-diluted before being added to the parts washer.

COST EFFECTIVENESS

Concentration

SMART Heavy Duty Degreaser is a concentrated product that is designed to be diluted with water. By diluting, you wind up paying only for the product that you actually need.

When comparing costs of cleaning products, remember to evaluate the cost per use gallon, not the actual purchase price. SMART Heavy Duty Degrease offers a Cost Evaluation Worksheet to assist in this process.

Flexibility

The ability to dilute SMART Heavy Duty Degreaser makes this product flexible for uses throughout your facility. With use dilutions of full strength to 30:1, and applications from floor cleaning, to repair and maintenance, to process cleaning, SMART Heavy Duty Degreaser may be the only cleaner / degreaser you need, reducing the cost of multiple vendors and larger inventories.

Personal Protective Equipment (PPE)

Because of SMART advanced worker safety properties, the need for PPE may be eliminated or reduced, which reduces the cost of the overall cleaning process.

Worker Compensation Insurance & Claims

Due to the increased worker safety benefits offered by SMART Heavy Duty Degreaser, worker exposure to several risks associated with traditional chemistries may be reduced or eliminated. This may have a positive effect on worker's compensation insurance rates and claims.

Property & Liability Insurance

Eliminating hazardous and/or flammable products from your inventory by replacing them with SMART Heavy Duty Degreaser may help reduce your operation's risk characteristics and costs of insurance and risk management.

Business and Tax Incentives

Many states, local jurisdictions, and insurance carriers are introducing tax credits or other incentives for switching to clean air and/or environmentally responsible technologies and processes.

Worker Training & Administration

Since SMART Heavy Duty Degreaser is non-hazardous, use of the product requires less worker training and less waste management administration.

Recyclable

For those customers who have on site waste treatment/minimization, or have volume to warrant the establishment of a fluid management system, SMART Heavy Duty Degreaser is recyclable and/or treatable.