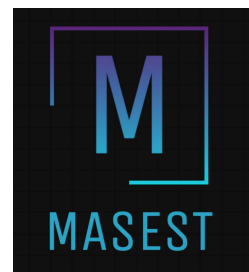


VertKleen HCR

LOW pH REPLACEMENT FOR HYDROCHLORIC ACID



- 100% Acid/VOC Free
- Non-Corrosive
- 100% Synthetic Acid
- Non-Fuming
- Non-D.O.T. Regulated
- 100% Biodegradable
- Safe on Eyes and Skin
- No Iron Control Needed
- Eliminates Foulants
- Ideal for Work Overs
- Requires No Inhibitors
- Removes Heavy Scale
- Replaces 30% HCl
- Dilutes Safely with Water

 **syntech**

 **cleangredients**



Until now, the oil industry has been forced to use dangerous acids, caustics and solvents to dissolve calcium carbonate, remove scale and paraffins and adjust pH.

Powered by advancements in EMS' patented SynTech, VertKleen HCR offers more descaling power and controlled release than the hydrochloric acid it so commonly replaces. Still, all that potency comes with a triple-zero HMIS score, which makes HCR safe on skin, eyes, equipment and safe to store.

The VertKleen line offers a wide range of products that have been proven effective through years of testing and used to replace dangerous acids, caustics and solvents. What's more, these synthetic solutions have been formulated with ingredients and technology known to the U.S. EPA and proven to exceed requirements for direct release. VertKleen HCR is made 100% Cleangredients.

VertKleen HCR can be used to remove scale and mineral deposits with the potency of traditional acids. Because the hydrogen in SynTech has a stronger bond to the H⁺ ion than those in acids, HCR has a slower spending nature. This makes it ideal for use in oilfield stimulation and hydraulic fracturing. Corrosion inhibitors are not required and iron control is not needed for most projects.

VertKleen HCR is available in totes and bulk and has a one year shelf life. Like all MASEST products, VertKleen HCR can be shipped by common carrier. No special gloves or PPE are needed for handling VertKleen HCR and it can be stored without secondary containment.

Ask your local MASEST VertKleen distributor for information on our complete line of safe replacements for caustics, acids and solvents.

For technical support or more information call 813-406-3852 or email matthew@masest.co

Technical Data

BIODEGRADABLE:	FLAMMABILITY: Non-Flammable
Yes/100% FORM: Liquid	BOILING POINT: 210° F
ODOR: Mild	SOLUBILITY IN WATER: 100%
COLD STABILITY: -10° F	VOCs: None
DETERGENCY: Moderate	VOLATILE BY VOLUME: N/A
PHOSPHATES: None	CARCINOGENS: None
WETTING ABILITY: Excellent	SHELF LIFE: 2 Year

Dissolving Properties

Calcium Carbonate Dissolving Properties of Acids

VertKleen HCR	100%
VertKleen HCR 50%	97%
VertKleen HCR 33%	54%
15% HCL	87%
7.5% HCL	46%

A one inch cube of calcium carbonate was placed in each material being tested for 8 hours at 100 degrees F. Results show percentage of cube dissolved.

Use Directions

VertKleen HCR can be diluted to water as needed based on the severity of the scale and reaction needed for the job.

VertKleen HCR can be blended with traditional iron control agents, demulsifiers and biocides or with MASEST' line of safe replacements for those typically dangerous chemicals. Corrosion inhibitors and iron control agents are typically not required when using VertKleen HCR.

DOT STATEMENT

Conclusion: VertKleen HCR was proven to be NON-DESTRUCTIVE on human skin tissue.

Non-D.O.T. Regulated/Non-D.O.T. Hazardous EXEMPT as per 49 CFR 173.154(d) (2) <6.25 mmpy

Dilution Specification

Please refer to the product label.

Toxicity Studies

Toxicity Limits: Test Procedure OECD 202, 48 hr. LC 50 and LD 50 (rat oral: NON-TOXIC

Mutagenicity Limits: OECD Guidelines Sec. 471 Chemicals: NON-MUTAGENIC

Dermal Irritation & Corrosion

A modified Draize method was used as described in OECD Guidelines for the Testing of Chemicals Sec. 404 and complies with the requirements of OECD Principles of GLP, Annex revised as of July 1992.

VertKleen HCR is classified as a "Very Mild Skin Irritant".

Biodegradation & Aquatic Safety

Test Procedure: Hach Reactor Digestion method for Waste Water and Sea Water. Hach Reactor Digestion Method is a semi-micro adaptation of the Standard Methods.

VertKleen HCR is 100% Biodegradable.

Classifications & Approvals

D.O.T. - Non-Regulated

TDG - Non-Regulated to and through Canada

SARA 313 311/312 - This product does not contain any ingredients that are subject to the reporting requirements.

California Prop 65 - This product does not contain any ingredients known to the state of California to cause cancer, birth defects or any other reproductive harm.

FDA - Approved as Safe (GRAS)

Storage and Handling

VertKleen HCR has a shelf life of more than one year. Product is freeze/thaw stable. Keep container closed when not in use. Safety glasses are suggested when handling this product. No special gloves or protective equipment are required. Due to the product's low pH, aluminum piping and fittings should not be used. Consult your authorized VertKleen representative for tank, piping, valve, hose coupling and fitting recommendations.

VertKleen HCR is typically sold in 275 gallon totes but can be packaged in smaller containers as well as bulk delivery. Rinse empty container and discard as per federal, state and local regulations.

Additional Studies & Results: When tested, VertKleen HCR showed no potential for the generation of Carbon Dioxide under NIOSH 7903 OSHA & ACGIH testing protocols governing workplace environments.