PERACLEAN®

Peracetic acid solutions for disinfection and oxidation

EVONIK
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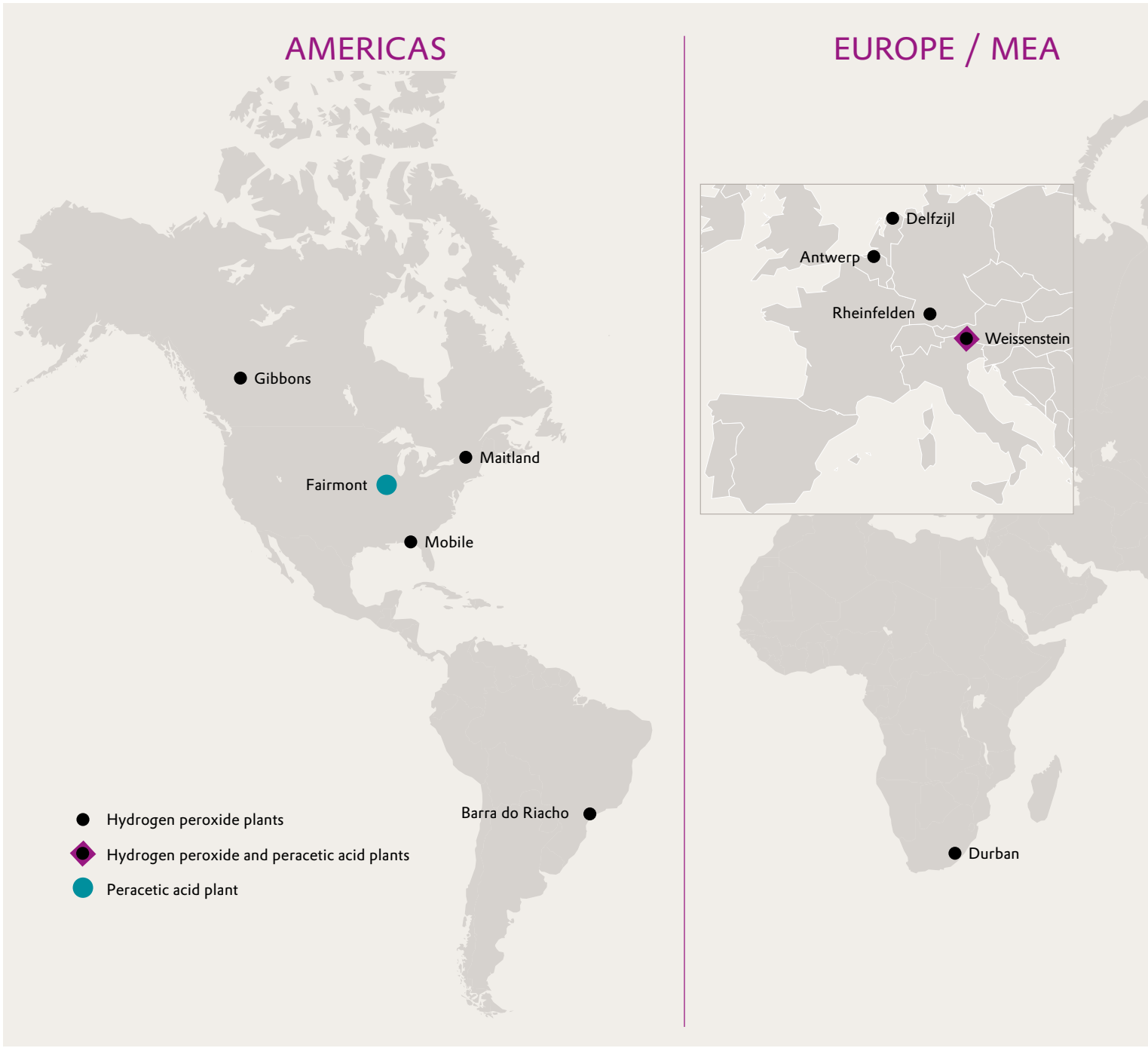
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Durban
Hydrogen peroxide plants
Hydrogen peroxide and peracetic acid plants
Peracetic acid plant

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Evonik is one of the world's largest producers of hydrogen peroxide and peracetic acid. We have been manufacturing peracetic acid for more than 50 years and are the innovative leader in high-quality products and services. We manufacture a range of peracetic acid solutions that provide exceptional value to our customers around the world.

Our commitment to you:

PERACLEAN® is a powerful oxidizer and antimicrobial that offers our industrial and commercial customers affordable solutions to improve operations, maximize yield, and reduce costs. Our customers receive access to a portfolio of industry-leading products and experienced customer service ready to make Evonik work to fit your unique needs.

- Fast-acting oxidizer
- Broad spectrum antimicrobial
- Environmentally-friendly

Industrial & commercial cleaning
Hard and non-porous surface sanitizer

In highly frequented places, it is important to maintain a clean environment in order to prevent the spread of harmful bacteria, infections, and viruses. Ranging from hospitals to school bathrooms, PERACLEAN® has versatile applications as a non-porous, hard surface cleaner.

With its outstanding disinfectant properties, PERACLEAN® is effective against various bacteria, yeasts, molds, and viruses found through industrial and commercial facilities. As a potent antimicrobial agent that is non-corrosive to stainless steel, PERACLEAN® can be applied to various equipment and surfaces to reduce and prevent certain bacteria, including E.Coli, Staphylococcus, Aureus (MRSA), Salmonella enterica, Lysteria and Cholera.

PERACLEAN® is an environmentally friendly, EPA and FDA registered product that can address the disinfection concerns throughout industrial facilities.

Agriculture
Irrigation water

Efficient agriculture is more important now than ever due to increasing water scarcity and a growing global need for food.
Irrigation is an essential component for crop yield and soil maintenance, making water quality imperative.

PERACLEAN® is an effective irrigation water and system cleaner that is proven to treat algae, slime, bacteria build-up, and a variety of other imperfections that deteriorate water quality. The oxidizing properties of PERACLEAN® enable an effective break down of scale and nutrient build up within the irrigation system. Additionally, when dosed in-line, PERACLEAN® can act as a fungicide. PERACLEAN® is also safe for the environment because it decomposes into acetic acid, water, and oxygen.

Environmental
Municipal & industrial wastewater treatment

With municipalities facing more demanding water restrictions and industrial facilities under pressure to operate with fewer resources, the need for more clean water is imperative.

PERACLEAN® offers a variety of formulations that bring oxidizing biocides to municipal and industrial wastewater treatment. As a broad-spectrum biocide, our EPA registered PERACLEAN® products are extremely effective in addressing microbiological and organic decomposition.

The fast acting properties of PERACLEAN® offer a cost-effective replacement for alternative technologies such as chlorine, ozone, chlorine dioxide, or as a complimentary reagent to UV light technology. The shorter contact times improve efficacy in highly contaminated process water and waste water, and as an eco-friendly product, PERACLEAN® produces no persistent byproducts. PERACLEAN® products are also non corrosive to stainless steel and only minimally corrosive to mild carbon steel.

Bacteria and other harmful microbes are found throughout food processing facilities. PERACLEAN® offers a variety of formulations that address various intervention stages of the food and beverage industry.

Food & beverage

Regardless of application, PERACLEAN® offers an environmentally friendly solution to your food and beverage disinfection and sanitation needs, helping you reach the highest standards of food safety and quality. PERACLEAN® 22 CW is approved for organic and kosher processing, and meets USDA standards when used as directed.

PERACLEAN® products can be used as a non-porous food contact surface sanitizer in applications such as tanks, pipes, and other equipment within the food processing lifecycle. Cleanliness, however, does not only apply during production, but afterwards as well. PERACLEAN® can also be used as a sanitizer for final bottle rinses and used in foam applications for hard non-porous surfaces, such as conveyer belts.

In preharvest applications, in-line dosing of the product helps prevent mold and biofilm formation on crops. For postharvest applications, PERACLEAN® may reduce microorganisms and help prevent further mold growth in process water and during storage.

PERACLEAN® 22 CW is an antimicrobial agent approved for a multitude of intervention points, including online and offline reprocessing (OLR/OFLR), spray, wash, rinse, chiller or scald, for whole or cut meat and poultry carcasses. PERACLEAN® 22 CW covers a broad spectrum of pathogen control helping reduce bacterial contamination that can cause product spoilage. PERACLEAN® 22 CW requires no rinsing, is non-foaming, and is non-corrosive to stainless steel.

Oil & gas
Biocide and oxidizer

In a market that requires oil and gas producers to become increasingly efficient, microbiological contamination is potentially disastrous. It can disrupt production and reduce yield, while increasing production cost.

PERACLEAN® improves equipment life, reduces risk to human life, and enables easy re-use of water by addressing a variety of challenges throughout oil and gas production. As a biocide, its antimicrobial effects help control sulfide reducing and acid producing bacteria in produced water cleanup and frac water pretreatment. Its fast reaction time enables PERACLEAN® to oxidize sulfides and other organics. Furthermore, it can be effectively used as a scale remover in wellbore or near the wellbore radius in a wide range of temperatures.

PERACLEAN® is registered with the EPA, does not form any chlorinated byproducts, and is only minimally corrosive to mild carbon steel. If discharged into an effluent stream, PERACLEAN® rapidly decomposes into environmentally safe water, oxygen, and acetic acid.

Laundry
Bleaching and stain removal

Replacing broken and yellowed sheets in a hospitality or healthcare facility can be costly, especially if it can be avoided.

PERACLEAN® is an effective bleaching and stain removal agent in contract laundry cleaning. When added during the washing stage for items such as linens, towels, or aprons, PERACLEAN® whitens and removes any unwanted stains in a wide range of temperatures, while maintaining the integrity of the fibers. PERACLEAN® is also more environmentally friendly than other bleaching agents.

Manufacturing & applications

For the preparation of peracetic acid Evonik uses the direct synthesis of a catalyzed, equilibrium reaction between acetic acid and hydrogen peroxide. The equilibrium concentration of peracetic acid is adjusted by the type and concentration of the catalyst used as well as by the molar ratio of the initial materials.

Peracetic acid solutions are clear, colorless liquids. They are miscible with water and organic solvents. Concentrated peracetic acid solutions boil during decomposition. Depending on the requirements of the particular application, Evonik offers various peracetic acid grades under the brand PERACLEAN®.

PERACLEAN® products are used in the food and beverage industry for sanitization of installations, tanks, pipelines and equipment as well as for packaging material and in the animal health applications for sanitation of surfaces and stables. PERACLEAN® products were designed and registered for the treatment of wash water in agricultural applications and for use in water treatment applications to reduce the amount of harmful organisms such as algae, bacteria and germs. PERACLEAN® grades with high peracetic acid content are successfully utilized in a variety of industries as a strong oxidizing agent.

Safety & handling

PERACLEAN® products have oxidizing and corrosive properties. Safety precautions have to be applied accordingly. While working with PERACLEAN®, proper care must always be taken. Safety goggles, protective gloves, and suitable protective clothing must be worn. If necessary, a gas mask should be used with an appropriate filter.

If peracetic acid comes into contact with skin and eyes, it must be rinsed off thoroughly with plenty of water and the person must seek medical attention.
If the product is spilled during processing, it must be absorbed with inert material or diluted immediately with a large amount of water and washed away. In case of fire use water or foam. Clean equipment made from compatible materials such as polyethylene, glass, or stainless steel must be used. Products must not be confined in containers, vessels, piping systems or between valves. There must always be a pressure release or breathing device. Once the product has been drawn from the original container it should never be returned due to a risk of contamination and decomposition.

If our PERACLEAN® is used as a biocide, always read the labels and product information before use. Use biocides safely.

Labeling

Aqueous solutions of peracetic acid are considered hazardous chemicals and must be labeled and handled in accordance with local, state, provincial and federal laws and regulations. The exact classification of the particular product depends on the concentration of peracetic acid and hydrogen peroxide. Please refer to the material safety data sheet of the corresponding product for its exact GHS classification.

Application	Product
Industrial & Commercial	PERACLEAN® 5 PERACLEAN® 15 PERACLEAN® 22 CW
Fruit & Vegetable Processing	PERACLEAN® 5 PERACLEAN® 15
Meat & Poultry Processing	PERACLEAN® 22 CW
Environmental	PERACLEAN® 15 PERACLEAN® 15 WW
Agriculture	PERACLEAN® 5 PERACLEAN® 15
Oil & Gas	PERACLEAN® 15 PERACLEAN® 22 CW
Laundry	PERACLEAN® 5 PERACLEAN® 15

Registrations & certifications

Product Name	EPA Registration No.	OMRI Certification No.
PERACLEAN® 5	54289-3	Deg-0494
PERACLEAN® 15	54289-4	Deg-0495
PERACLEAN® 15 WW	54289-12	-
PERACLEAN® 22 CW	-	Deg-5809

Product Name	FCN Registration No.	Use as antimicrobial agent
PERACLEAN® 22 CW	1662 OLR/OFLR	In the production of poultry
PERACLEAN® 22 CW	1477	On meat carcasses, parts, trim and organs
PERACLEAN® 22 CW	1094	On meat carcasses, parts, trim and organs
PERACLEAN® 15	1025	In wash and chilling water that contacts fruits and vegetables that are not raw agricultural commodities

Product Name	Registration	Use as antimicrobial agent
PERACLEAN® 5	CFIA	For sanitizing dairies, food and beverage plants, poultry premises and hatcheries
PERACLEAN® 15	CFIA	For sanitizing dairies, food and beverage plants, poultry premises and hatcheries
PERACLEAN® 22 CW	iLONO	On poultry and beef carcasses, parts, trim and organs

Biocidal efficacy of PERACLEAN®

The following table shows kill times in minutes according to the suspension method of the DLG (German Agricultural Society), with colony counts of 10^7 -10^8 per ml of the inoculum.

Temperature of action	5 °C		10 °C		20 °C		40 °C	
Application concentration (%) as PAA 100%	0.01	0.025	0.01	0.025	0.01	0.025	0.01	0.025
Gram-positive bacteria								
Staph. aureus	5	3	3	2	2	1	1	0.5
Strept. faecalis	3	3	3	2	2	1	1	0.5
Gram-negative bacteria								
Enterobacter aerogenes	1	1	1	1	1	1	1	0.5
Ps. aeruginosa	3	1	2	1	1	0.5	1	0.5
Salmonella types	3	2	3	2	2	2	1	1
Yeasts								
Sacch. cerevisiae	20	10	10	5	3	1	1	0.5
Cand. mycoderma	120	40	90	40	40	10	3	1
Molds								
Penicilium camerunense	>120	90	>120	90	20	10	3	1
Asp. niger	>240	>240	>240	>240	90	60	10	5
Mucor spec.	>240	>240	>240	>240	20	5	3	1
Application concentration (%) related to PAA 100%	0.025	0.05	0.025	0.05	0.025	0.05	0.025	0.05
Sporulators								
Bac. cereus	>60	>60	>60	>60	>60	>60	40	10
Bac. subtilis	>60	40	>60	>60	>60	60	40	10
Bac. mesentericus	>60	40	>60	40	10	5	10	1
Thermophile sporulators	>60	40	40	40	20	5	5	2
Clostridium perfringens	>60	10	>60	10	20	5	2	1

Source: Greenspan, F.P. et al: the convenient preparation of per-acids. J. Am. Chem. Soc. 68 (1946) 907

Packaging, transportation & storage

According to the different properties between the formulations, there are differences in transportation, storage, and delivery of peracetic acid solutions.

Packaging	Size (gallons)	PERACLEAN® concentration							
		5		15		15 WW		22 WW	
		lb	kg	lb	kg	lb	kg	lb	kg
drums	5	46.6	21.1	46.6	21.1	-	-	-	-
	15	140	63.5	140	63.5	-	-	-	-
	30	280	127	280	127	-	-	-	-
	55	485	220	485	220	-	-	485	220
totes	275	2425	1100	2420	198	-	-	2425	1100
	330	2986.5	1355	3040	1379	-	-	2940	1334
bulk	ISO	-	-	-	-	42000	19051	-	-

Due to transport regulations and depending on the specific grade, our products are classified as either stabilized hydrogen peroxide and peracetic acid mixtures, belonging to class 5.1 (UN 3149) or as organic peroxides, belonging to class 5.2 (UN 3109).

PERACLEAN® products must be stored in an upright position and in their original containers.
They have to be stored in a cool place, protected from direct sun light and with good ventilation.
Any contamination, especially with metal ions, alkalis and reducing agents must be avoided.
PERACLEAN® formulations must be kept away from any heat source and combustible materials, especially organic solvents. Vapors of highly concentrated peracetic acid may form explosive mixtures with air. Packages are equipped with venting devices to avoid overpressure. Do not cover the closures which allow venting. All containers should be checked regularly.
When properly transported and stored in the originally sealed containers, all peracetic acid products show no notable loss of content for at least 12 months.
Applicable storage regulations for each country must be followed.

Concentration of PAA	PAA ≤ 5%	PAA > 5%
UN No.	3149	3109
Class	5.1 (8)	5.2 (8)
Packing Group	II	II

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This information and all further technical advice are based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied.
We reserve the right to make any changes according to technological progress or further developments.
The customer is not released from the obligation to conduct careful inspection and testing of incoming goods.
Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used. (August 2014)

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