ARC 360

An advanced alternative to conventional acids used for manual and cleaning in place (CIP) descaling operations. Ideal for cleaning and descaling blackwater systems and vacuum system pipework, through to a variety of on-board process equipment such as plate heat exchangers, evaporators and coolers. ARC 360 is formulated with biobased degreasing surfactants to improve scale removal reducing the need for a separate degreaser treatment. The product includes an effective corrosion inhibitor optimised to protect clean metal surfaces, welds, and joints

Product Description

ARC 360 is a non-abrasive, descaling and degreasing solution designed specifically for marine equipment. Free from bleach, ammonia, phosphates, and harsh solvents, it safely removes scale and grease without damaging metal surfaces or finishes. Its enhanced safety profile makes it suitable for use where traditional acidic cleaners cannot be applied, and its integrated corrosion inhibitors help protect equipment during regular use.

Key Features

- Bleach, ammonia, phosphate & solvent-free formulation
- Safe on common marine metals when used as directed
- Delivers the performance of strong mineral acids without the handling hazards
- Dual-purpose: descales and degreases in one application
- Formulated with bio-based degreasing surfactants
- Enhanced safety profile, non-abrasive, low-fuming, and safer to handle at sea
- Integrated corrosion inhibitors protect bare metals, welds, and joints during cleaning
- Ideal for repeated descaling of sensitive shipboard equipment
- Sewage plant safe: fully biodegradable with a pH-buffering profile that protects biomass
- Rapid dissolution of carbonate, uric, and struvite scales matching mineral acid speeds
- Versatile Application (CIP & Manual/In-Situ)

Application Area

Scale of various compositions occur in a wide range of marine applications and processes. These range from struvite, uric and carbonate scales in black and grey water systems, to complex mineral scales encountered in process equipment such as plate heat exchangers, evaporators, coolers and freshwater generators.

Acid descaling generally falls into two categories:

- Regular/daily maintenance application of solutions of weaker organic acids (e.g. citric or sulfamic acids)
- Aggressive descaling with strong mineral acids (e.g. hydrochloric or phosphoric acids)

With the exception of sulfamic acid, weak organic acids have a good environmental profile, but are not that effective in difficult, high scale situations. Strong mineral acids such as hydrochloric acid are very effective at removing scale but are also very corrosive towards metal and people. Their use is often restricted to port or dry dock and by specially trained and equipped operators. ARC 360 is far safer to use than strong mineral acids during normal ship operations and whilst at sea. ARC 360 is 100% biodegradable and is not only safer to use by personnel and materials, is safer for the environment.

IN USE

Carbonate Scale Removal

Time taken to completely dissolve 5g of a mixture of calcium and magnesium carbonates at 20°C (static) by ARC 360 (1/10 dilution) = 48 mins.
(this compares to 2.8% HCl (43mins) and 6.7% Citric acid (58mins)

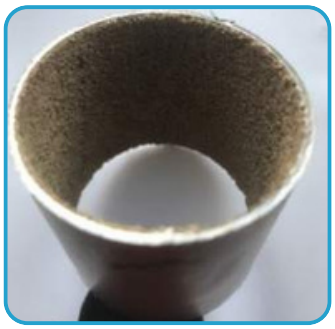
Blackwater Scale Removal

316L SS pipe recovered from blackwater system of a Scandinavian ferry ARC 360 diluted 1/10. Temperature = 20°C. Sections soaked (no agitation) for 60mins, rinsed dried and weighed.

Corrosion Inhibition

316L SS sections were (cold) cut into sections, soaked in ARC 360 (1/10 dilution), 14% HCl or 28% H_3PO_4 for 2hrs & air dried for 24hrs

Before



After

97.7% scale removal

(>95% removal required
2.8% HCl or 8% H3PO4
or 6.7% citric acids)

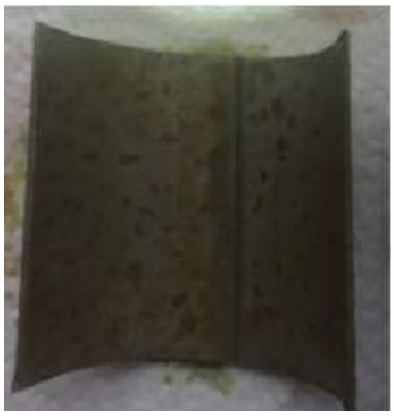
Corrosion Inhibition Test Results

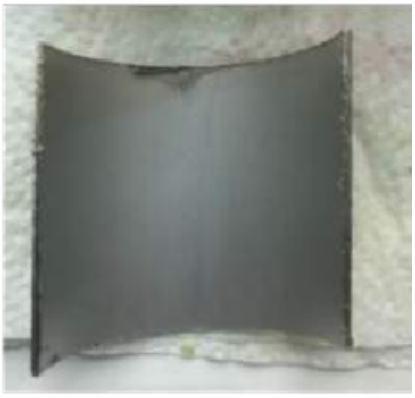
Galvanised mild steel coupons were soaked for 2h in ARC 360 (1/10 dilution), with and without inhibitor and compared to 14% HCl and 6.7% Citric acid

Product	Inhibitor	% Weight Loss
ARC 360	+	0%
ARC 360	-	2.8 %
HCl	+	0.7%
HCl	-	11.5%
Citric acid	+	0.6%
Citric acid	-	10.2%

Aluminium coupons were soaked for 2h in ARC 360 (1/10 dilution), with and without inhibitor and compared to 14% HCl and 6.7% Citric acid

Product	Inhibitor	% Weight Loss
ARC 360	+	0.15%
ARC 360	-	10.2%
HCl	+	1.2%
HCl	-	27.2%
Citric acid	+	1.8%
Citric acid	-	19.4%





CONCLUSION

ARC 360 when diluted by 1/10 standard working concentration dissolves carbonate scale and mixed blackwater scale in the same time as HCl and other common acids (corrected for H+ concentration).

No corrosion on 316L or 304 stainless results with correct use.

Protection of galvanised metals and aluminium surfaces is enhanced with correct use compared to common mineral and organic acids.

DIRECTIONS FOR USE

Deep clean blackwater pipes

1. In-situ whilst the ship is operational, add 200 ml of ARC 360 down each toilet and flush it with warm water (30-40°C) repeat 3 times per day over 5 days. At the end of each day flush with clean warm water.

2. Isolate sections of pipe and fill with a 50% solution of ARC 360 soaking for 24 hours and rinse through when finished. Should a 3rd application be required repeat above at 25% solution of ARC 360.

3. If vacuum produced via an ejector, then the addition of an Antifoam agent will be required to stop excessive foaming.

Regular Maintenance Manual

For Descaling of blackwater waste system apply between 100-200 ml of ARC 360 in 2L of hot water. Pour down the cabin toilet and flush once. Repeat as required. Apply weekly as a maintenance treatment or as per maintenance schedule. ARC 360 has a built-in degreaser so no separate degreasing step is required even if the scale is contaminated with body fats, oil, greases typically found in blackwater pipes.

Regular Maintenance Automated

Adjust dosing pump to inject 10 ml per connected toilet upon pipe section. If the vessel uses LA 20NC as daily biological toilet cleaner, dosing rate should be adjusted to 5 ml per connected toilet.

Cleaning in Place (CIP)

Suitable for use on plate heat exchangers, evaporators, coolers, freshwater generators and other process equipment that is normally cleaned by CIP. Also suitable for off-line cleaning. The product concentration required depends on the extent of scale build up and the desired time to achieve a satisfactory result. Always follow the equipment manufacturer's guidance where available. Alternatively, use a 2% to 30% solution (approx. 1:50 to 1:3 dilution), depending on the severity of scale buildup. In the absence of an established CIP procedure, start with a 1:10 (10%) dilution in clean water and circulate through the system for 3–4 hours. Adjust contact time and concentration based on initial inspection. Alternatively, replace the existing CIP acid directly with an equivalent concentration of ARC 360.

Immersion & Component Soaking

Prepare a 10% to 20% solution (1:10 to 1:5 dilution) in a suitable plastic or stainless-steel soak tank. Submerge components completely and allow to soak for 1 to 4 hours depending on scale and deposit thickness. Agitation or warming the solution (up to 40°C) accelerates dissolution. Rinse thoroughly with fresh water immediately upon removal.

Light Rust & Surface Oxidation Removal

Apply a 10% to 25% solution directly to affected areas using a brush, cloth, or low-pressure spray. Allow 15–30 minutes of contact time without letting the surface dry out. Agitate lightly with a non-abrasive pad if necessary, then rinse thoroughly with clean fresh water.

After Use

At the end of the cleaning operation, it is important to thoroughly rinse the equipment and all contacted surfaces with clean water to remove any residual product and dissolved scale.

Features & Benefits

- Matches mineral acid performance while outperforming common organic acids
- Contains a powerful bio-based degreasing agent
- Includes a corrosion inhibitor for metal protection
- Readily buffered and biodegradable, minimizing risk of upsetting STP biology
- Fully biodegradable and environmentally safe
- Suitable for CIP and manual cleaning of scaled equipment
- Removes scale, mineral deposits, light rust, and light oil
- Safer to handle at sea than concentrated acids
- Dual-action, degreases and descales in one step
- Saves time and reduces resource usage
- Standard packaging compliant with ADR Limited Quantity (LQ) rules

Disclaimer

The information provided in this Technical Data Sheet is accurate at the date of issue and should be used for indicative purposes only. Please refer to your Company Representative for specific User instructions as to how these relate to your usage requirements. Please note that GNC Marine is not liable for claims, damages, costs or expenses of any kind arising from the mishandling of the product or changes that might occur during the handling, storage and application conditions provided by any third party who does not follow the minimum requirements defined in the SDS. Please refer to the SDS for further information regarding the handling, storage and application procedures for the product.

Note

- Not recommended for blackwater pipes free from scale
- Avoid routine use in systems not regularly flushed
- Do not allow product solution to pool or remain stagnant in pipework
- Do not mix or allow contact with chlorine bleach, sodium hypochlorite, or oxidising biocides
- Exercise caution on low-grade, damaged, or heavily welded/drilled stainless steel where heat-affected zones may be susceptible to localized corrosion

Product Information

Packaging: 4x5L (standard size)
Product Code: 80001-20

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