

NATRApHASE[®] DCA+

Specifically formulated for use in the Cleaning of CIP cleaning application, removal of milk stone from storage tanks and pipe work, cleaning and sanitising of utensils, machinery, floors, walls and washrooms. **NATRApHASE[®] DCA+** imparts effective

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Product: NATRAPHASE® DCA+: Specific for Descaling/Hard Surface Cleaning

Description: The product is a low foaming cleaner with anti microbial activity which accelerates the dissolution of fats, proteins, oil fibres and milk stone that adhere to the surface of pipelines, tanks and mixing/blending vessels. The product is formulated using natural organic acids, acidified salt and alkyl glucoside.

The Product:

- Is not susceptible to deterioration in activity due to pathogen mutation
- Is highly effective in breaking down biofilm
- Replaces HARSH CAUSTIC AND ACID CLEANERS

NATRAPHASE® DCA+ compared to Synthetic Products:

Key Features	NATRAPHASE™ DCA+	Chlorine	Gluter-aldehyde	Phenolics	Quats	Peracetic Acid
Toxic	No	Yes	Yes	Yes	No	No
Corrosive	No	Yes	Yes	Yes	No	Yes
Harmful Residues	No	Yes	Yes	Yes	Yes	Yes
Health and Safety Concerns	No	Yes	Yes	Yes	Yes	Yes
Naturally Derived	Yes	No	No	No	No	No
Disposal Considerations	No	Yes	Yes	Yes	Yes	Yes

How the product works:

Naturally occurring organic acids that are incorporated in the product start a vigorous dissolution activity on lime scale, fats, oil fibres and contaminants.

Contaminants on the surfaces of pipelines, bulk tanks and mixing/blending vessels form an excellent growth environment for harmful bacteria and other undesirable contaminating materials in the food chain. NATRAPHASE® DCA+ acts effectively as both a cleaner and anti microbial agent, reducing significantly the amount of terminal rinse required.

In addition lower water temperatures may be used helping to reduce total costs. NATRAPHASE® DCA+ can be used at 15°C - 20°C compared with most cleaners requiring a starting temperature of >60°C

The Features of NATRAPHASE® DCA+:

- Broad spectrum bactericidal and sporicidal
- Hypoallergenic
- Non tainting
- Cost effective
- Non corrosive
- Low foaming (A high foam alternative is available)
- Safe on ALL surfaces

The Applications include:

- CIP cleaning application
- Removal of milk stone from storage tanks and pipe work
- Cleaning of utensils, machinery, floors, walls and washrooms
- Cleaning footwear

Use: NATRAPHASE® DCA+ should be applied at a dilution of between 0.5% - 2.0% depending on degree of soiling and application. Example:

- General cleaning/sanitising applications 0.50%
- Milk plants 1.00% - 2.00%
- CIP 1.00% - 2.00%

How to Use:

Automated Systems:

- **Rinse Cycle:** The first rinse cycle should have a water temperature of 45°C - 50°C and be run as programmed.
- **Wash Cycle:** Use a water temperature of 45°C - 50°C as the starting point. Allow the system to operate as programmed. Then add NATRAPHASE® DCA+ to the wash cycle at a rate of 0.50% - 2.00% depending on the degree of soiling.
- **Final Rinse:**
 - Non-food tankers/lines/vessels – flush with clean water containing 0.50% of NATRAPHASE® DCA+ to ensure no salts re-precipitate after evaporation.
 - Food tankers/lines/vessels – Chlorine containing sanitizers are usually used in this cycle. We recommend replacing this stage of sanitizing with a 0.50% NATRAPHASE® DCA+.

Microbiological Activity:

BS EN1276:1997 Test Procedure – The product undergoes an efficacy screen test based on the European Suspension Test. After four (3) minutes contact time in dirty conditions @ 25°C. The kill rates are determined from the test dilution

Organism	Challenge Cfu/ml	% Kill Level	Log Kill	Pass/Fail
Pseudomonas Aeruginosa	3.0E+07	>99.999	>7	Pass
E. Coli ATCC 10536	3.1E+07	>99.999	>7	Pass
Staphylococcus Aureus ATCC 6538	2.9E+07	>99.999	>7	Pass
Enterococcus Hirae ATCC 10541	2.6E+07	>99.999	6.5	Pass
Salmonella Typhimurium ATCC 13311	2.9E+07	>99.999	>7	Pass
Listeria monocytogenes	3.1E+07	>99.999	6.3	Pass
Bacillus Cereus NCIMB 11925	3.4E+07	>99.999	6.0	Pass
Candida Albicans NCYC 1363	3.1E +07	>99.999	5.8	Pass
Aspergillus niger IMI 104215	4.1E+07	>99.999	5.7	Pass

Packaging:

- 5 litre poly containers – 2 per box
- 20 litre (21kg) drums
- 1000 litre (1050kg) IBC

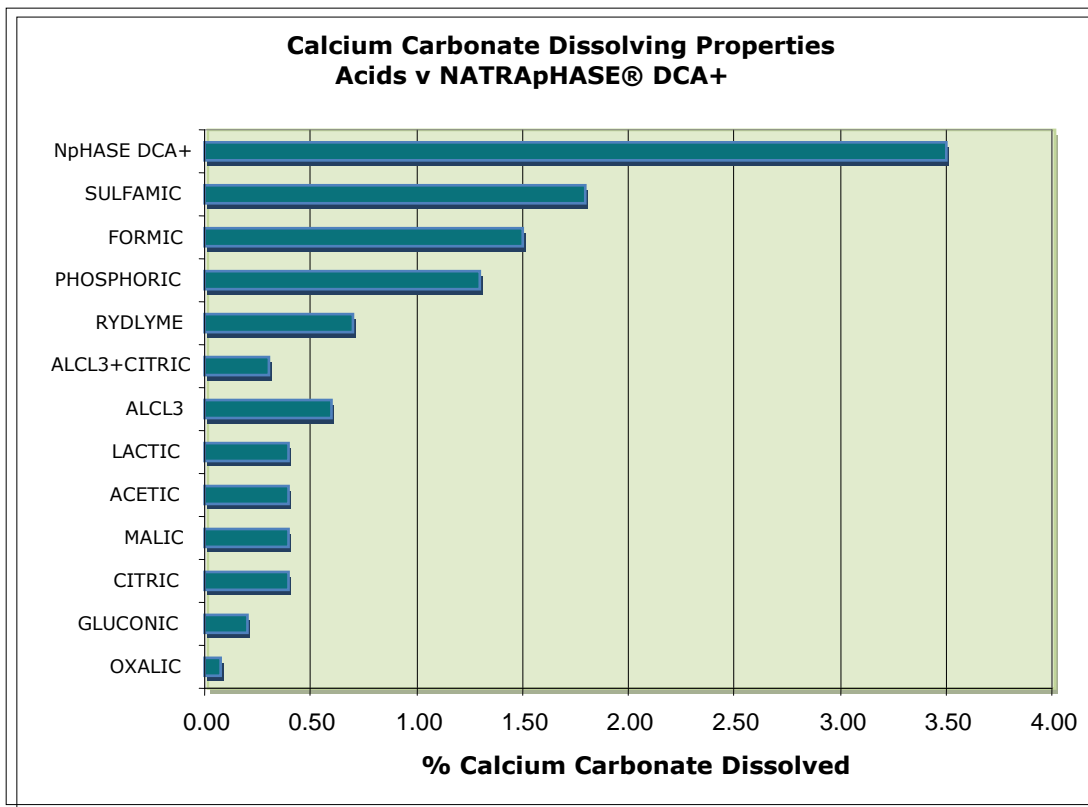
Dissolving the Properties of Lime Scale (Milk Stone)

NATRApHASE® DCA+ was challenged against both Calcium Carbonate and Calcium Sulphate the major constituents of Lime Scale / Milk Stone for a 15 minute exposure period.

The results as shown in Charts 1 and 2 illustrate the extremely efficient and effective way in which NATRApHASE® DCA+ dissolves the calcium salts without incurring the down side of commonly used mineral/organic acids which are:

- High toxicity
- High corrosion
- Low biodegradability

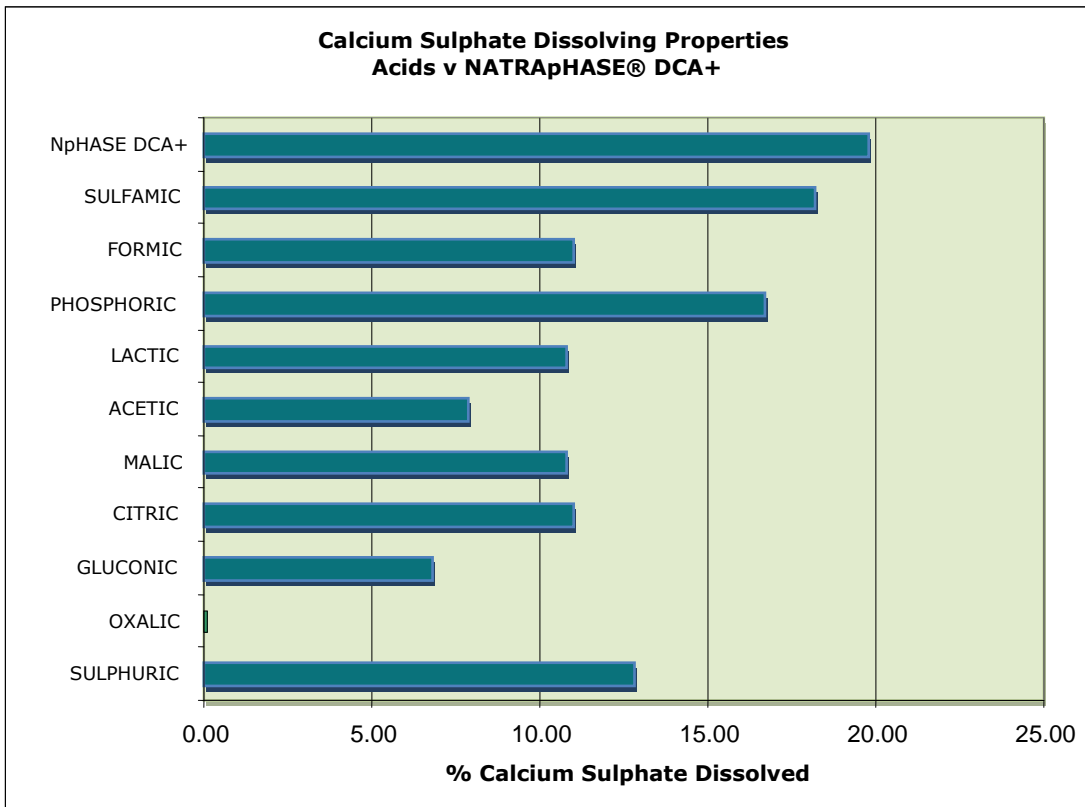
Chart 1



Test Conditions:

- 200 grams of 5% NATRApHASE® DCA+ solution
- 1 gram of reagent grade Calcium Carbonate powder
- Add the Calcium Carbonate and mix for one (1) minute
- Vacuum filter after one (1) minute and record the weight of the undissolved Calcium Carbonate.

Chart 2



Test Conditions:

- 200 grams of 5% NATRAPHASE® DCA Plus solution
- 1 gram of reagent grade Calcium Sulphate powder
- Add the Calcium Sulphate and mix for one (1) minute
- Vacuum filter after one (1) minute and record the weight of the undissolved Calcium Sulphate.

NACE STANDARD

Corrosive Data:

The corrosive rate for NATRAPHASE® DCA+ is 0.6379 millimetres per year (mmpy). According to OSHA and DOT, a product is NOT CORROSIVE if it does not exceed 6.25mmpy at a test temperature of 55°C when tested against NACE STANDARD TMO169-76. The NATRAPHASE® DCA+ results represent a very wide cross section of applications for cleaning applications.

TRIANGLE TEST RESULTS

Results of the test are given in Table (1)

Table (1)

Test Reference Number	No. of Assessors	No. Correctly Identifying the Different Samples	Significance
102153/1 Untreated (control) versus Treated Whole Milk (treated milk previously stored in direct contact with bottles cleaned with 2% Solution of Citrox Sterilising Fluid for 24 hours at 5°C or less)	30	9	Similar at 10% Beta and 30% Pd

For a triangle test for similarity, using 30 judgements, a maximum number of 11 correct responses are required to establish similarity between two samples. The results indicate that 9 assessors correctly identified the odd sample. We can therefore conclude that the samples are similar, at the chosen level of 10% Beta (β) and 30% Pd. That is we are 90% confident that only 30% of discriminators can detect a difference between samples.

Alpha – probability of concluding that a perceptible difference exists when one does not.

Beta - probability of concluding that no perceptible difference exists when one does.

Pd – the proportion of assessments in which a perceptible difference is detected between the two products.

Reference: Sensory Analysis Methodology – Triangle Test BS ISO 4120:2004

Descriptor given when the different sample was correctly identified can be seen in Table (2)

Test Reference No: 102153/1

Table (2)

SA/102153/1 Whole Milk	Untreated (Control)	More creamy (1) Tastes fattier (1) Watery taste (1)
SA/102153/2 Whole Milk (Treated milk: previously stored in direct contact with bottles cleaned with a 2% Solution of Citrox Sterilising Fluid and Stored for 24 hours at 5°C or less)	Treated (Test)	Sweeter (3) Less harsh aftertaste, slightly less creamy in texture and taste (1) Slightly watery flavour compared to the other two samples (1) More creamy (1)

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION AND SPECIFICATION

Product Description: NATRAPHASE® DCA+

Product Code: NBDCA025, NBDCAIBC (20Litre, 1000Litre)

1 COMPOSITION AND INFORMATION ON COMPONENTS

Components: Natural Acids + Alkyl Glucoside

EINECS No: 201-180-5

CAS No: 77-92-9

Hazard: Xi Irritant

Risk Phases: R36/38 Irritating to eyes and skin

1. HAZARDS IDENTIFICATION

This product is classed as a mild irritant and can cause irritation to the eyes and skin.

2. FIRST AID MEASURES

Eyes: Immediately flush eye with eye-wash solution or clean water for at least 10 minutes

Skin: Wash the affected area with plenty of water

Ingestion: Get medical attention. Drink copious amounts of water

Inhalation: Non-volatile liquid product

3. FIRE FIGHTING MEASURES

Extinguishing Media: Product is non-combustible

Special Hazards: None

4. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear rubber gloves if prolonged contact with liquid

Environmental precautions: No particular/specific measures required

Spillage treatment:

Small spillage: Wash to drain with large amounts of water.

Large spillage: Contain with sand or earth and neutralize with lime or sodium carbonate and remove to suitable container for transfer to an approved chemical tip or alternatively flush to drain with copious quantities of water.

5. HANDLING AND STORAGE

Handling: Trained personnel wearing suitable protective clothing
Avoid contact with skin or eyes

Storage: Store in a secure chemical area at ambient temperature

Packaging: Supplied in 25 litre, and 1000litre IBC approved plastic containers

6. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- General:** No specific measures are required provided the product is handled in accordance with the general rules of occupational hygiene and safety. Avoid contact with eyes, skin or clothes.
- Personal Protection:** The following personal protective equipment should be provided
- Skin protection:** Protective overalls/shoes
- Hand protection:** Impervious gloves
- Eye protection:** Chemical safety goggles

7. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Clear pale yellow liquid
- Odour:** Fresh
- Density Concentrate:** 1.30 – 1.32
- Density 2.00%:** 1.01 – 1.02
- pH Concentrate:** 0.40 – 0.42
- pH 2.00% Solution:** 1.80 – 1.82
- Solubility:** Soluble in water

8. STABILITY AND REACTIVITY

- Stability:** Stable under normal storage conditions
- Conditions to avoid:** Protect from frost
- Material to avoid:** Avoid contact with alkalis. (**Do not mix** with chlorinated detergents bleach)
- Decomposition:** Toxic gases and vapour may be released

9. TOXICOLOGICAL INFORMATION

- Acute Toxicity:** Low order of acute toxicity
- Eyes:** Contact with liquid or spray can cause eye damage
- Skin:** Mildly aggressive to skin
- Ingestion:** If taken orally internal damage can result
- Inhalation:** None available

10. ECOLOGICAL EFFECTS

- Mobility:** Product dissolves completely in water
- Degradability:** Product is above 98% biodegradable
- Accumulation:** None known
- Eco-toxicity:** Contains substances which can affect aquatic environment

11. DISPOSAL

Wear appropriate protective clothing. Soak up with sand or earth, neutralize and remove to suitable container for transfer to chemical tip. Alternatively flush to drain with copious quantities of water. Disposal should be in accordance with waste disposal or water authority regulations.

12. TRANSPORT INFORMATION

UN No: Not classified
Hazard class: Not classified
Packaging group: Not classified

Only transport in original containers in upright position. Never remove containers from cardboard containers before transporting. Unless containers are palletized never transport stacked more than 2 high.

13. REGULATORY INFORMATION

Chemicals (hazard information and packaging for supply)
Regulations 1996 classification: Xi Irritant

Risk phrases: R36/38 Irritating to eyes and skin
Safety phrases: S26 In case of contact with eyes and skin, rinse with plenty of water and seek medical advice.
S37/39 Wear suitable rubber gloves and eye/face protection
Use of this product may be governed by the following;
Chemical Hazard Information and Packaging Regulations 1996
Carriage of Dangerous Goods by Road and Rail (C.P.L) Regulation 1996
Control of Substances Hazardous to Health Regulations 1996

14. OTHER INFORMATION

This product is a process wash aid for CIP use in the food and associated industries.

DISCLAIMER: Natural Biotechnology Sprl has used every possible care in compiling, preparing and issuing this information. Manufacturers using this product must nevertheless satisfy themselves of the suitability of the material for incorporation in their own end-products having regard to all relevant obligations therewith, whether under the Food Safety Act, Feeding Stuffs Regulations, Health & Safety at Work Act, Control of Substances Hazardous to Health Regulations 1996 or any other relevant legislation or common law requirement.

Legal status: Local food regulations should always be consulted concerning the status of this product as legislation regarding its use in food may vary from country to country.

The information contained in this publication is based on our own research and development work and is to the best of our knowledge reliable. Users should, however, conduct their own tests to determine the suitability of our product for their own specific purposes. Statements contained herein should not be considered as a warranty of any kind, expressed or implied and no liability is accepted for the infringement of any patents.

Natural Biotechnology Sprl
Rue de Liège 1, 6180 – Courcelles, Belgium

☎: +32 714 50026 🖨: +32 241 66 378 **UK Office:** ☎: +44 (0)7971 00 03

Email: info@naturalbiotechnology.eu **Web:** www.naturalbiotechnology.eu