Industrial and Institutional Cleaning

Food and Beverage Processing

Acidic cleaning for Dairy Industry

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Introduction

- Cleaning In Place (CIP), is one of the most important but also most challenging processes in the dairies. The requirements to these type of cleaners are very high:
- Suitable for all types of milking plants
- Built in detergent to help leave glassware clean
- Dissolves scale and milk stone
- Emulsifies/hydrolyses fats and proteins, iron oxide, pyruvate
- Disperses pigment soil
- No corrosion
- Foam free over a broad temperature Range (10-80°C)

Introduction

- Driving forces for innovation of acidic CIP Cleaners are:
- Save resources:
  - Energy, water, cleaning steps
- Increase safety:
  - No nitrous gases
- Process Optimization
  - Faster and better cleaning
- Environmental protection
  - Reduction of phosphates, nitrates/ nitrites
- But how to control the effectiveness of a developed cleaner solution?

Acidic CIP Cleaners for the Dairy Industry
Test Method

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-upon request-

Acidic CIP Cleaners for the Dairy Industry Enabling Choices

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Test Formulation RK14-54-BP

Ingredients	Chemical Description	w [%] active
*Lutropur® M	Methane sulfonic acid	0.20
*Plurafac® LF 221	Fatty alcohol alkoxylate	0.02
Water demin.	Aqua	99.78

Performance

	Application concentration	Stock solution ~40% (≙ 1:200)	Stock solution ~70% (≙ 1:350)
Appearance	Colorless, clear	Colorless, clear	Colorless, clear
Form of appearance	fluid	fluid	fluid
Odor	No odor	No odor	No odor
pH-Value	2.0	0.3	0.0

*The ingredients mentioned in „green" will be supported by the Nordic Swan

Acidic CIP Cleaners for the Dairy Industry
Lutropur® M - Key Benefits

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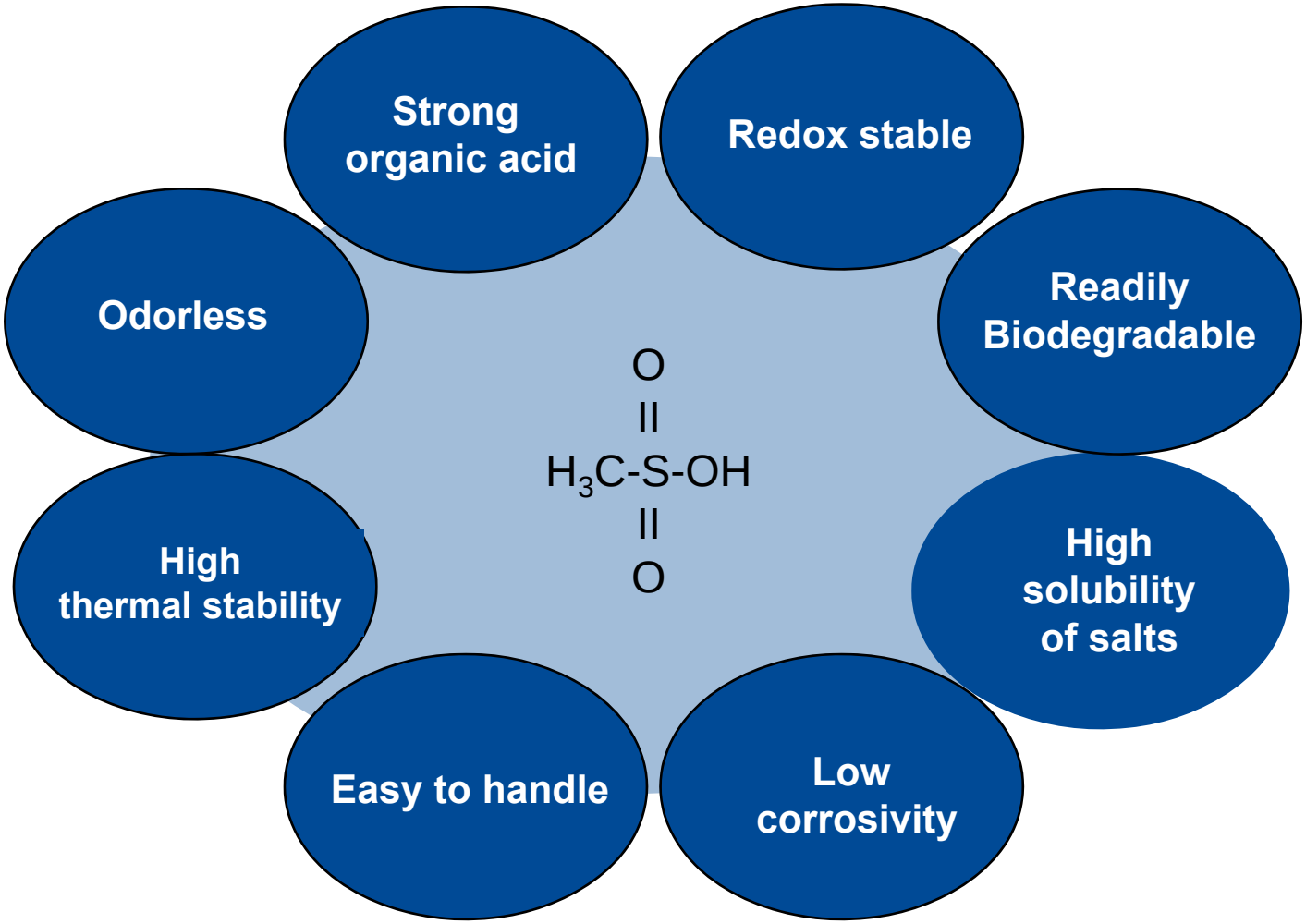

CIP Cleaners for the Dairy Industry
Enabling Choices

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Excellent low foaming surfactants

Plurafac® LF

Dehypon® LS /LT

- **First recommendation for low foam effect at a temperature area of 60 – 80°C**
  *Plurafac® LF 303, *Plurafac® LF 403, *Plurafac® LF 120, Dehypon® LS 24, Dehypon® LS104
- **Highly alkaline stable:**
  Plurafac® LF 131, Plurafac® LF 431, Dehypon® LT 104, Dehypon® LT 104 L
- **Good wetting properties on stainless steel:**
  *Plurafac® LF 120, *Plurafac® LF 221, Plurafac® LF 131, Plurafac® LF 431, Dehypon® LS 104, Dehypon®LT104
- **Special pre mix for highly alkaline systems:**
  Dehypon® 2555, Lutensit ® AN 45 (convenience!)

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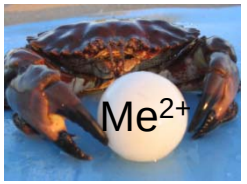
Chelating agents



*Trilon® M (Trisodium salt of Methylglycinediacetic acid)	▪ **A superior toxicological profile** ▪ **Readily biodegradable** ▪ **No labeling is required in EU** ▪ A strong chelating agent ▪ Fast action on inorganic and organic scale ▪ Flexible application in alkaline and acidic formulations ▪ Available as liquid, granules, powder, Compact
Trilon® BX (Tetrasodium salt of Ethylenediaminetetraacetic acid)	▪ **Very strong binding of alkaline earth and heavy metal ions** ▪ The most versatile chelating agent ▪ Good toxicological profile

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CIP Cleaners for the Dairy Industry
Enabling Choices

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Dispersing Agent - Polyacrylates

Sokalan® CP 10 Sokalan® CP 10 S Sokalan® CP N40	▪ **They are effective for dispersing inorganic soils** ▪ **In particular they help to inhibit the formation of scale by hard-water salts** ▪ Sokalan® Types are available in a broad range of molar mass ▪ All are manufactured by a special polymerization process. ▪ All perform very well in aqueous media
*Sokalan® PA 15 *Sokalan® PA 20 *Sokalan® PA 25 CL *Sokalan® PA 30 CL	▪ **The "CL" grades allow to formulate cleaners with active-chlorine** ▪ Effective against scale of hard-water salts deposits on surfaces ▪ Start to be effective at low application concentration (15-60mg/l)

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CIP – Cleaning In Place
Enabling Choices

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Brilliant foam control surfactants

Plurafac®

Dehypon®

- **First recommendation**
  Plurafac® LF 224, *Plurafac® LF 403
- **Good wetting properties on stainless steel:**
  *Plurafac® LF 223, *Plurafac® LF 500, *Plurafac® LF 900, Dehypon® 2574
- **High alkaline stable:**
  Plurafac® LF 132, Plurafac® LF 231, Dehypon® LT 054

Superb defoamer – Foam suppressor

Dehydem®

Degressal®

Dehypon®

- *Degressal® SD 20, Dehypon® OCP 502, Dehypon® G 162, *Degressal® SD 40, *Dehydem® Supra,

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Acidic CIP – Cleaning In Place
Enabling Choices

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Disinfection

*Protectol® GA 50	▪ Fast acting biocide ▪ Effective against: Bacteria, fungi, spores, viruses ▪ Surface disinfection, water preservation, in-can preservation ▪ Limited in concentration
*Protectol® FM	▪ Broad spectrum activity ▪ Effective against: Bacteria, fungi, viruses ▪ Biodegradable with attractive environmental and safety profile ▪ Disinfection uses, in-can preservative

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Acidic CIP Cleaners for the Dairy Industry
Summary – Advantages of Lutropur® M

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Cleaning performance

- Better than the tested market products

Formulation

- Possible to formulate high and ultra high concentrated stock solutions with surfactants (not possible with nitric acid)
- No negative influence of oxidation on other formulation compounds

Ecotoxicology

- No phosphates, nitrates or nitrites will be emitted into the environment

Safety of concentrated stock solutions

- Not toxic, not oxidizing, not volatile

Skip two CIP cleaning steps

- 99% cleaning performance in only one cleaning step
- In combination with Protectol® FM also disinfected according EN 1276, EN1650

DISCLAIMER

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Use biocides safely. Always read the label and product information before use.

150 years

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