


## Ludwik - scale and rust

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier:** Ludwik - scale and rust
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
Relevant uses: Cleaner  
Uses advised against: All uses not specified in this section or in section 7.3
- 1.3 Details of the supplier of the safety data sheet:**  
GRUPA INCO S.A.  
ul. Wspólna 25  
00-519 Warszawa - Mazowieckie - Polska  
Phone.: +48 22 71 15 900  
info.produkty@inco.pl  
www.inco.pl
- 1.4 Emergency telephone number:** +48 22 7115900 (7.30-15.30)

### SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture:**  
**CLP Regulation (EC) n° 1272/2008:**  
Classification of this product has been carried out in accordance with CLP Regulation (EC) n° 1272/2008.  
Eye Irrit. 2: Eye irritation, Category 2, H319
- 2.2 Label elements:**  
**CLP Regulation (EC) n° 1272/2008:**  
**Warning**
- 
- Hazard statements:**  
Eye Irrit. 2: H319 - Causes serious eye irritation
- Precautionary statements:**  
P101: If medical advice is needed, have product container or label at hand  
P102: Keep out of reach of children  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P337+P313: If eye irritation persists: Get medical advice/attention
- Supplementary information:**  
EUH208: Contains reaction mass 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H -isothiazol-3-one. May produce an allergic reaction
- 2.3 Other hazards:**  
Non-applicable






### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

- 3.1 Substance:**  
Non-applicable
- 3.2 Mixture:**  
**Chemical description:** Mixture composed of chemical products  
**Components:**  
In accordance with Annex II of Regulation (EC) n°1907/2006 (point 3), the product contains:

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)**

Identification	Chemical name/Classification	Concentration
CAS: 5949-29-1 EC: Non-applicable Index: Non-applicable REACH: 01-2119457026-42-XXX X	<b>Citric Acid monohidrated</b> Regulation 1272/2008 Eye Irrit. 2: H319 - Warning	Self-classified  <b>5 - &lt;8 %</b>
CAS: 67-63-0 EC: 200-661-7 Index: 603-117-00-0 REACH: 01-2119457558-25-XXX X	<b>Propan-2-ol</b> Regulation 1272/2008 Eye Irrit. 2: H319; Flam. Liq. 2: H225; STOT SE 3: H336 - Danger	ATP CLP00  <b>1 - &lt;3 %</b>
CAS: 6153-56-6 EC: 205-634-3 Index: 607-006-00-8 REACH: 01-2119534576-33-XXX X	<b>Oxalic acid · 2H2O</b> Regulation 1272/2008 Acute Tox. 4: H302+H312; Eye Dam. 1: H318 - Danger	Self-classified  <b>1 - &lt;3 %</b>
CAS: 64-18-6 EC: 200-579-1 Index: 607-001-00-0 REACH: 01-2119491174-37-XXX X	<b>Formic acid</b> Regulation 1272/2008 Skin Corr. 1A: H314 - Danger	ATP CLP00  <b>0,1 - &lt;1 %</b>
CAS: 55965-84-9 EC: Non-applicable Index: 613-167-00-5 REACH: Non-applicable	<b>Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1)</b> Regulation 1272/2008 Acute Tox. 3: H301+H311+H331; Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Skin Corr. 1B: H314; Skin Sens. 1: H317 - Danger	ATP CLP00  <b>&lt;0,0015 %</b>

To obtain more information on the risk of the substances consult sections 8, 11, 12, 15 and 16.

**Other information:**

Identification	Specific concentration limit
Formic acid CAS: 64-18-6 EC: 200-579-1	% (w/w) >=90: Skin Corr. 1A - H314 10<= % (w/w) <90: Skin Corr. 1B - H314 2<= % (w/w) <10: Skin Irrit. 2 - H315 % (w/w) >=10: Eye Dam. 1 - H318 2<= % (w/w) <10: Eye Irrit. 2 - H319
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1) CAS: 55965-84-9 EC: Non-applicable	% (w/w) >=0,6: Skin Corr. 1B - H314 0,06<= % (w/w) <0,6: Skin Irrit. 2 - H315 % (w/w) >=0,06: Eye Irrit. 2 - H319 % (w/w) >=0,0015: Skin Sens. 1 - H317

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures:**

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

**By inhalation:**

This product is not classified as hazardous through inhalation, however, it is recommended in case of intoxication symptoms to remove the person affected from the area of exposure, provide clean air and keep at rest. Request medical attention if symptoms persist.

**By skin contact:**

This product is not classified as hazardous when in contact with the skin. However, in case of skin contact it is recommended to remove contaminated clothes and shoes, rinse the skin or shower the person affected if necessary thoroughly with cold water and neutral soap. In case of serious reaction consult a doctor.

**By eye contact:**

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, as this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

**By ingestion/aspiration:**

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

**4.2 Most important symptoms and effects, both acute and delayed:**

Acute and delayed effects are indicated in sections 2 and 11.

**4.3 Indication of any immediate medical attention and special treatment needed:**

Non-applicable

- CONTINUED ON NEXT PAGE -

## Ludwik - scale and rust

### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, manipulation and use, containing flammable substances. In the case of inflammation as a result of improper manipulation, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems. IT IS NOT RECOMMENDED to use tap water as an extinguishing agent.

#### 5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

#### 5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and individual respiratory equipment. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

#### Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Destroy any source of ignition. In case of fire, refrigerate the storage containers and tanks for products susceptible to inflammation, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures:

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inertization agent. Destroy any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

#### 6.2 Environmental precautions:

Avoid spillage into an aqueous medium as it contains substances potentially dangerous for this. Contain the product absorbed in hermetically sealed containers. In the case of serious spillage into an aqueous medium notify the relevant authority.

#### 6.3 Methods and material for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

#### 6.4 Reference to other sections:

See sections 8 and 13.

### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling:

##### A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

##### B.- Technical recommendations for the prevention of fires and explosions

Avoid the evaporation of the product as it contains flammable substances, which could form flammable vapour/air mixtures in the presence of sources of ignition. Control sources of ignition (mobile phones, sparks,...) and transfer at slow speeds to avoid the creation of electrostatic charges. Avoid projections and pulverizations. Consult section 10 for conditions and materials that should be avoided.

##### C.- Technical recommendations to prevent ergonomic and toxicological risks

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

##### D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

#### 7.2 Conditions for safe storage, including any incompatibilities:

##### A.- Technical measures for storage

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 7: HANDLING AND STORAGE (continued)**

Store in a cool, dry, well-ventilated location

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

**7.3 Specific end use(s):**

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters:**

Substances whose occupational exposure limits have to be monitored in the work environment

Identification		Environmental limits	
Formic acid	IOELV (8h)	5 ppm	9 mg/m <sup>3</sup>
CAS: 64-18-6	IOELV (STEL)		
EC: 200-579-1	Year	2015	

**DNEL (Workers):**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Propan-2-ol	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 67-63-0	Dermal	Non-applicable	Non-applicable	888 mg/kg	Non-applicable
EC: 200-661-7	Inhalation	Non-applicable	Non-applicable	500 mg/m <sup>3</sup>	Non-applicable
Oxalic acid· 2H <sub>2</sub> O	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 6153-56-6	Dermal	Non-applicable	Non-applicable	2,29 mg/kg	Non-applicable
EC: 205-634-3	Inhalation	Non-applicable	Non-applicable	4,03 mg/m <sup>3</sup>	Non-applicable
Formic acid	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 64-18-6	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
EC: 200-579-1	Inhalation	Non-applicable	19 mg/m <sup>3</sup>	Non-applicable	9,5 mg/m <sup>3</sup>

**DNEL (General population):**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Propan-2-ol	Oral	Non-applicable	Non-applicable	26 mg/kg	Non-applicable
CAS: 67-63-0	Dermal	Non-applicable	Non-applicable	319 mg/kg	Non-applicable
EC: 200-661-7	Inhalation	Non-applicable	Non-applicable	89 mg/m <sup>3</sup>	Non-applicable
Oxalic acid· 2H <sub>2</sub> O	Oral	Non-applicable	Non-applicable	1,14 mg/kg	Non-applicable
CAS: 6153-56-6	Dermal	Non-applicable	Non-applicable	1,14 mg/kg	Non-applicable
EC: 205-634-3	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable
Formic acid	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
CAS: 64-18-6	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
EC: 200-579-1	Inhalation	Non-applicable	9,5 mg/m <sup>3</sup>	Non-applicable	3 mg/m <sup>3</sup>

**PNEC:**

Identification				
Citric Acid monohydrated CAS: 5949-29-1 EC: Non-applicable	STP	1000 mg/L	Fresh water	0,44 mg/L
	Soil	33,1 mg/kg	Marine water	0,044 mg/L
	Intermittent	Non-applicable	Sediment (Fresh water)	34,6 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	3,46 mg/kg
Propan-2-ol CAS: 67-63-0 EC: 200-661-7	STP	2251 mg/L	Fresh water	140,9 mg/L
	Soil	28 mg/kg	Marine water	140,9 mg/L
	Intermittent	140,9 mg/L	Sediment (Fresh water)	552 mg/kg
	Oral	160 g/kg	Sediment (Marine water)	552 mg/kg
Oxalic acid· 2H <sub>2</sub> O CAS: 6153-56-6 EC: 205-634-3	STP	1550 mg/L	Fresh water	0,1622 mg/L
	Soil	Non-applicable	Marine water	Non-applicable
	Intermittent	1,622 mg/L	Sediment (Fresh water)	Non-applicable
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Identification				
Formic acid	STP	7,2 mg/L	Fresh water	2 mg/L
CAS: 64-18-6	Soil	1,5 mg/kg	Marine water	0,2 mg/L
EC: 200-579-1	Intermittent	1 mg/L	Sediment (Fresh water)	13,4 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	1,34 mg/kg

**8.2 Exposure controls:**

**A.- General security and hygiene measures in the work place**



As a preventative measure it is recommended to use basic Personal Protection Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protection Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

**B.- Respiratory protection**



The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

**C.- Specific protection for the hands**

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	Protective gloves against minor risks			Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN 420 and EN 374.

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application



**D.- Ocular and facial protection**

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against liquid splash		EN 166:2001 EN ISO 4007:2012	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

**E.- Bodily protection**

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Work clothing			Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2001, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
	Anti-slip work shoes		EN ISO 20347:2012	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 20345 y EN 13832-1

**F.- Additional emergency measures**

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2002	 Eyewash stations	DIN 12 899 ISO 3864-1:2002

**Environmental exposure controls:**

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

\*Not relevant due to the nature of the product, not providing information property of its hazards.

- CONTINUED ON NEXT PAGE -

## Ludwik - scale and rust

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

#### 9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

##### Appearance:

Physical state at 20 °C:	Liquid
Appearance:	Fluid
Color:	Colourless
Odor:	Floral
Odour threshold:	Non-applicable *

##### Volatility:

Boiling point at atmospheric pressure:	100 °C
Vapour pressure at 20 °C:	2367 Pa
Vapour pressure at 50 °C:	12441 Pa (12 kPa)
Evaporation rate at 20 °C:	Non-applicable *

##### Product description:

Density at 20 °C:	1060 kg/m <sup>3</sup>
Relative density at 20 °C:	1,06
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	1,8 - 2,8
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Highly water-soluble
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *

##### Flammability:

Flash Point:	Non Flammable (>60 °C)
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	399 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *

#### 9.2 Other information:

Surface tension at 20 °C:	Non-applicable *
Refraction index:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

### SECTION 10: STABILITY AND REACTIVITY

#### 10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

#### 10.2 Chemical stability:

Chemically stable under the conditions of storage, handling and use.

- CONTINUED ON NEXT PAGE -

## Ludwik - scale and rust

### SECTION 10: STABILITY AND REACTIVITY (continued)

#### 10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

#### 10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Precaution	Precaution	Not applicable

#### 10.5 Incompatible materials:

Acids	Water	Combustive materials	Combustible materials	Others
Not applicable	Not applicable	Avoid direct impact	Not applicable	Avoid alkalis or strong bases

#### 10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO<sub>2</sub>), carbon monoxide and other organic compounds.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

##### Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than recommended by the occupational exposure limits, it may result in adverse effects on health depending on the means of exposure:

##### A.- Ingestion (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, however it does contain substances classified as dangerous for this effect. For more information see section 3.

##### B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met, however it does contain substances classified as dangerous for this effect. For more information see section 3.

##### C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for skin contact. For more information see section 3.
- Contact with the eyes: Produces eye damage after contact.

##### D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

##### E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitising effects. For more information see section 3.
- Cutaneous: Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous with sensitising effects. For more information see section 3.

##### F- Specific target organ toxicity (STOT) - single exposure:

Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for inhalation. For more information see section 3.

##### G- Specific target organ toxicity (STOT)-repeated exposure:

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

**Other information:**

Non-applicable

**Specific toxicology information on the substances:**

Identification	Acute toxicity		Genus
Propan-2-ol	LD50 oral	5280 mg/kg	Rat
CAS: 67-63-0	LD50 dermal	12800 mg/kg	Rat
EC: 200-661-7	LC50 inhalation	72,6 mg/L (4 h)	Rat
Citric Acid monohidrated	LD50 oral	3000 mg/kg	Rat
CAS: 5949-29-1	LD50 dermal	5500 mg/kg	Rat
EC: Non-applicable	LC50 inhalation	Non-applicable	
Oxalic acid· 2H2O	LD50 oral	500 mg/kg	Rat
CAS: 6153-56-6	LD50 dermal	2000 mg/kg	Rabbit
EC: 205-634-3	LC50 inhalation	Non-applicable	
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	LD50 oral	100 mg/kg	Rat
CAS: 55965-84-9	LD50 dermal	300 mg/kg	Rat
EC: Non-applicable	LC50 inhalation	Non-applicable	

**SECTION 12: ECOLOGICAL INFORMATION**

The experimental information related to the eco-toxicological properties of the product itself is not available

**12.1 Toxicity:**

Identification	Acute toxicity	Species	Genus
Citric Acid monohidrated	LC50 1516 mg/L (96 h)	Lepomis macrochirus	Fish
CAS: 5949-29-1	EC50 120 mg/L (48 h)	Daphnia magna	Crustacean
EC: Non-applicable	EC50 Non-applicable		
Propan-2-ol	LC50 9640 mg/L (96 h)	Pimephales promelas	Fish
CAS: 67-63-0	EC50 13299 mg/L (48 h)	Daphnia magna	Crustacean
EC: 200-661-7	EC50 1000 mg/L (72 h)	Scenedesmus subspicatus	Algae
Oxalic acid· 2H2O	LC50 160 mg/L (48 h)	Leuciscus idus	Fish
CAS: 6153-56-6	EC50 136.9 mg/L (48 h)	Daphnia magna	Crustacean
EC: 205-634-3	EC50 Non-applicable		
Formic acid	LC50 175 mg/L (24 h)	Lepomis macrochirus	Fish
CAS: 64-18-6	EC50 120 mg/L (48 h)	Daphnia magna	Crustacean
EC: 200-579-1	EC50 26.9 mg/L (72 h)	Scenedesmus subspicatus	Algae
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	LC50 0.1 - 1 mg/L (96 h)		Fish
CAS: 55965-84-9	EC50 0.1 - 1 mg/L		Crustacean
EC: Non-applicable	EC50 0.1 - 1 mg/L		Algae

**12.2 Persistence and degradability:**

Identification	Degradability		Biodegradability	
Citric Acid monohidrated	BOD5	Non-applicable	Concentration	Non-applicable
CAS: 5949-29-1	COD	Non-applicable	Period	5 days
EC: Non-applicable	BOD5/COD	Non-applicable	% Biodegradable	72 %

- CONTINUED ON NEXT PAGE -



**Ludwik - scale and rust**

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Degradability		Biodegradability	
	Parameter	Value	Parameter	Value
Propan-2-ol CAS: 67-63-0 EC: 200-661-7	BOD5	1.19 g O <sub>2</sub> /g	Concentration	100 mg/L
	COD	2.23 g O <sub>2</sub> /g	Period	14 days
	BOD5/COD	0.53	% Biodegradable	86 %
Oxalic acid· 2H <sub>2</sub> O CAS: 6153-56-6 EC: 205-634-3	BOD5	Non-applicable	Concentration	100 mg/L
	COD	Non-applicable	Period	14 days
	BOD5/COD	0.89	% Biodegradable	37 %
Formic acid CAS: 64-18-6 EC: 200-579-1	BOD5	Non-applicable	Concentration	100 mg/L
	COD	Non-applicable	Period	14 days
	BOD5/COD	Non-applicable	% Biodegradable	110 %

**12.3 Bioaccumulative potential:**

Identification	Bioaccumulation potential	
	Parameter	Value
Citric Acid monohidrated CAS: 5949-29-1 EC: Non-applicable	BCF	3
	Pow Log	-1.64
	Potential	Low
Propan-2-ol CAS: 67-63-0 EC: 200-661-7	BCF	3
	Pow Log	0.05
	Potential	Low
Oxalic acid· 2H <sub>2</sub> O CAS: 6153-56-6 EC: 205-634-3	BCF	1
	Pow Log	-0.81
	Potential	Low
Formic acid CAS: 64-18-6 EC: 200-579-1	BCF	3
	Pow Log	-0.54
	Potential	Low

**12.4 Mobility in soil:**

Identification	Absorption/desorption		Volatility	
	Parameter	Value	Parameter	Value
Citric Acid monohidrated CAS: 5949-29-1 EC: Non-applicable	Koc	3.1	Henry	4,3E-14 Pa·m <sup>3</sup> /mol
	Conclusion	Very High	Dry soil	No
	Surface tension	Non-applicable	Moist soil	No
Propan-2-ol CAS: 67-63-0 EC: 200-661-7	Koc	1.5	Henry	8,207E-1 Pa·m <sup>3</sup> /mol
	Conclusion	Very High	Dry soil	Yes
	Surface tension	2,24E-2 N/m (25 °C)	Moist soil	Yes
Formic acid CAS: 64-18-6 EC: 200-579-1	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	3,862E-2 N/m (25 °C)	Moist soil	Non-applicable

**12.5 Results of PBT and vPvB assessment:**

Non-applicable

**12.6 Other adverse effects:**

Not described

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods:**

Code	Description	Waste class (Regulation (EU) No 1357/2014)
20 01 30	Detergents other than those mentioned in 20 01 29	Non dangerous

**Type of waste (Regulation (EU) No 1357/2014):**

Non-applicable

**Waste management (disposal and evaluation):**

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 13: DISPOSAL CONSIDERATIONS (continued)**

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommend disposal down the drain. See paragraph 6.2.

**Regulations related to waste management:**

In accordance with Annex II of Regulation (EC) n°1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

**SECTION 14: TRANSPORT INFORMATION**

**Transport of dangerous goods by land:**

With regard to ADR 2015 and RID 2015:

- 14.1 UN number:** Non-applicable
- 14.2 UN proper shipping name:** Non-applicable
- 14.3 Transport hazard class(es):** Non-applicable
- Labels: Non-applicable
- 14.4 Packing group:** Non-applicable
- 14.5 Dangerous for the environment:** No
- 14.6 Special precautions for user**
  - Special regulations: Non-applicable
  - Tunnel restriction code: Non-applicable
  - Physico-Chemical properties: see section 9
  - Limited quantities: Non-applicable
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:** Non-applicable

**Transport of dangerous goods by sea:**

With regard to IMDG 37-14:

- 14.1 UN number:** Non-applicable
- 14.2 UN proper shipping name:** Non-applicable
- 14.3 Transport hazard class(es):** Non-applicable
- Labels: Non-applicable
- 14.4 Packing group:** Non-applicable
- 14.5 Dangerous for the environment:** No
- 14.6 Special precautions for user**
  - Special regulations: Non-applicable
  - EmS Codes:
  - Physico-Chemical properties: see section 9
  - Limited quantities: Non-applicable
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:** Non-applicable

**Transport of dangerous goods by air:**

With regard to IATA/ICAO 2015:

- CONTINUED ON NEXT PAGE -

**Ludwik - scale and rust**

**SECTION 14: TRANSPORT INFORMATION (continued)**

<b>14.1 UN number:</b>	Non-applicable
<b>14.2 UN proper shipping name:</b>	Non-applicable
<b>14.3 Transport hazard class(es):</b>	Non-applicable
Labels:	Non-applicable
<b>14.4 Packing group:</b>	Non-applicable
<b>14.5 Dangerous for the environment:</b>	No
<b>14.6 Special precautions for user</b>	
Physico-Chemical properties:	see section 9
<b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:</b>	Non-applicable

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**

Regulation (EC) No 528/2012: contains a preservative to protect the initial properties of the treated article. Contains Bronopol (INN), Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1), Formic acid.

Candidate substances for authorisation under the Regulation (EC) 1907/2006 (REACH): Non-applicable

Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable

Regulation (EC) 1005/2009, about substances that deplete the ozone layer: Non-applicable

Article 95, REGULATION (EU) No 528/2012: Propan-2-ol (Product-type 1, 2, 4) ; Formic acid (Product-type 2, 3, 4, 5, 6, 11, 12) ; Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1) (Product-type 2, 4, 6, 11, 12, 13) ; Bronopol (INN) (Product-type 2, 6, 9, 11, 12, 22)

REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

**Regulation (EC) n°648/2004 on detergents:**

In accordance with this regulation the product complies with the following:

The tensoactives contained in this mixture comply with the biodegradability criteria stipulated in Regulation (EC) n°648/2004 on detergents. The information to prove this is available to the relevant authorities of the Member States and will be shown to them by direct request or the request of a detergent manufacturer.

**Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):**

Non-applicable

**Specific provisions in terms of protecting people or the environment:**

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of the local circumstances in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

**Other legislation:**

The product could be affected by sectorial legislation

- Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products
- Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on detergents
- Commission Regulation (EC) No 907/2006 of 20 June 2006 amending Regulation (EC) No 648/2004 of the European Parliament and of the Council on detergents, in order to adapt Annexes III and VII
- Commission Regulation (EC) No 551/2009 of 25 June 2009 amending Regulation (EC) No 648/2004 of the European Parliament and of the Council on detergents, in order to adapt Annexes V and VI thereto (surfactant derogation)

**15.2 Chemical safety assessment:**

- CONTINUED ON NEXT PAGE -

## Ludwik - scale and rust

### SECTION 15: REGULATORY INFORMATION (continued)

The supplier has not carried out evaluation of chemical safety.

### SECTION 16: OTHER INFORMATION

#### Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) N° 1907/2006 (Regulation (EC) N° 2015/830)

#### Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:

#### Texts of the legislative phrases mentioned in section 2:

H319: Causes serious eye irritation

#### Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

#### CLP Regulation (EC) n° 1272/2008:

Acute Tox. 3: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled

Acute Tox. 4: H302+H312 - Harmful if swallowed or in contact with skin

Aquatic Acute 1: H400 - Very toxic to aquatic life

Aquatic Chronic 1: H410 - Very toxic to aquatic life with long lasting effects

Eye Dam. 1: H318 - Causes serious eye damage

Eye Irrit. 2: H319 - Causes serious eye irritation

Flam. Liq. 2: H225 - Highly flammable liquid and vapour

Skin Corr. 1A: H314 - Causes severe skin burns and eye damage

Skin Corr. 1B: H314 - Causes severe skin burns and eye damage

Skin Sens. 1: H317 - May cause an allergic skin reaction

STOT SE 3: H336 - May cause drowsiness or dizziness

#### Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

#### Principal bibliographical sources:

<http://esis.jrc.ec.europa.eu>

<http://echa.europa.eu>

<http://eur-lex.europa.eu>

#### Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road

IMDG: International maritime dangerous goods code

IATA: International Air Transport Association

ICAO: International Civil Aviation Organisation

COD: Chemical Oxygen Demand

BOD5: 5-day biochemical oxygen demand

BCF: Bioconcentration factor

LD50: Lethal Dose 50

LC50: Lethal Concentration 50

EC50: Effective concentration 50

Log-POW: Octanol-water partition coefficient

Koc: Partition coefficient of organic carbon

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -