

Ludwik All in one - dishwasher tablets grapefruit

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

- 1.1 Product identifier:** Ludwik All in one - dishwasher tablets grapefruit
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant uses: Dishwashing detergent
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) No 1272/2008:
Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.
Eye Irrit. 2: Eye irritation, Category 2, H319
- 2.2 Label elements:**
CLP Regulation (EC) No 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
P264: Wash the hands thoroughly after handling
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 Subtilisin. May produce an allergic reaction
- 2.3 Other hazards:**
Product fails to meet PBT/vPvB criteria

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) No 1907/2006 (point 3), the product contains:

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

Identification	Chemical name/Classification	Concentration
CAS: 497-19-8 EC: 207-838-8 Index: 011-005-00-2 REACH 01-2119485498-19-XXX	Sodium carbonate ⁽¹⁾ Regulation 1272/2008 Eye Irrit. 2: H319 - Warning	ATP CLP00  20 - <25 %
CAS: 15630-89-4 EC: 239-707-6 Index: Non-applicable REACH 01-2119457268-30-XXX	Disodium carbonate, compound with hydrogen peroxide (2:3) ⁽¹⁾ Regulation 1272/2008 Acute Tox. 4: H302; Eye Dam. 1: H318; Ox. Sol. 3: H272 - Danger	Self-classified  10 - <20 %
CAS: 1344-09-8 EC: 215-687-4 Index: Non-applicable REACH 01-2119448725-31-XXX	Silicic acid, sodium salt (2.6 < MR <= 3.2) ⁽¹⁾ Regulation 1272/2008 Eye Irrit. 2: H319; Skin Irrit. 2: H315; STOT SE 3: H335 - Warning	Self-classified  3 - <5 %
CAS: 77-92-9 EC: 201-069-1 Index: Non-applicable REACH 01-2119457026-42-XXX	Citric Acid ⁽¹⁾ Regulation 1272/2008 Eye Irrit. 2: H319 - Warning	Self-classified  1 - <3 %
CAS: 68439-51-0 EC: Non-applicable Index: Non-applicable REACH Non-applicable	Alcohols, C12-14, ethoxylated propoxylated ⁽¹⁾ Regulation 1272/2008 Aquatic Chronic 3: H412	Self-classified 1 - <3 %
CAS: 29329-71-3 EC: 249-559-4 Index: Non-applicable REACH 01-2119510382-52-XXX	(1-hydroxyethylidene)bisphosphonic acid, sodium salt (4 Na) ⁽¹⁾ Regulation 1272/2008 Acute Tox. 4: H302; Eye Irrit. 2: H319 - Warning	Self-classified  1 - <3 %
CAS: 9014-01-1 EC: 232-752-2 Index: 647-012-00-8 REACH 01-2119480434-38-XXX	Subtilisin ⁽¹⁾ Regulation 1272/2008 Acute Tox. 4: H302; Aquatic Acute 1: H400; Aquatic Chronic 2: H411; Eye Dam. 1: H318; Resp. Sens. 1: H334; Skin Irrit. 2: H315; STOT SE 3: H335 - Danger	ATP CLP00  0,1 - <1 %
CAS: 5970-45-6 EC: 209-170-2 Index: Non-applicable REACH 01-2120119383-62-XXX	Zinc di(acetate) · 2H2O ⁽¹⁾ Regulation 1272/2008 Acute Tox. 4: H302+H312+H332; Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Eye Irrit. 2: H319; Skin Irrit. 2: H315; STOT SE 3: H335 - Warning	Self-classified  <0,151 %

⁽¹⁾ Substances presenting a health or environmental hazard which meet criteria laid down in Regulation (EU) No. 2015/830

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

Other information:

Identification	Specific concentration limit
Disodium carbonate, compound with hydrogen peroxide (2:3) CAS: 15630-89-4 EC: 239-707-6	% (w/w) >=59: Ox. Sol. 3 - H272 % (w/w) >=25: Eye Dam. 1 - H318 10<= % (w/w) <25: Eye Irrit. 2 - H319

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, in case of intoxication symptoms it is recommended 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 if necessary shower the affected person 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, in which case 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/aspersion:

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.

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SECTION 4: FIRST AID MEASURES (continued)

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

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, 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 self-contained breathing apparatus (SCBA). 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. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, 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:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

6.2 Environmental precautions:

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

6.3 Methods and material for containment and cleaning up:

It is recommended:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

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

Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

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

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal See sections 8 and 13.

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SECTION 7: HANDLING AND STORAGE (continued)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

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

Nuisance dust: Inhalable dust 10 mg/m³ // Respirable dust 4 mg/m³

DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Sodium carbonate CAS: 497-19-8 EC: 207-838-8	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	10 mg/m ³
Disodium carbonate, compound with hydrogen peroxide (2:3) CAS: 15630-89-4 EC: 239-707-6	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	5 mg/m ³
Silicic acid, sodium salt (2.6 < MR <=3.2) CAS: 1344-09-8 EC: 215-687-4	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	1,59 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	5,61 mg/m ³	Non-applicable

DNEL (General population):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Sodium carbonate CAS: 497-19-8 EC: 207-838-8	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	10 mg/m ³	Non-applicable	Non-applicable
Silicic acid, sodium salt (2.6 < MR <=3.2) CAS: 1344-09-8 EC: 215-687-4	Oral	Non-applicable	Non-applicable	0,8 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,8 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1,38 mg/m ³	Non-applicable
(1-hydroxyethylidene)bisphosphonic acid, sodium salt (4 Na) CAS: 29329-71-3 EC: 249-559-4	Oral	6,5 mg/kg	Non-applicable	6,5 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable

PNEC:

Identification				
Disodium carbonate, compound with hydrogen peroxide (2:3) CAS: 15630-89-4 EC: 239-707-6	STP	16,24 mg/L	Fresh water	0,035 mg/L
	Soil	Non-applicable	Marine water	0,035 mg/L
	Intermittent	0,035 mg/L	Sediment (Fresh water)	Non-applicable
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable
Silicic acid, sodium salt (2.6 < MR <=3.2) CAS: 1344-09-8 EC: 215-687-4	STP	348 mg/L	Fresh water	7,5 mg/L
	Soil	Non-applicable	Marine water	1 mg/L
	Intermittent	7,5 mg/L	Sediment (Fresh water)	Non-applicable
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification				
Citric Acid CAS: 77-92-9 EC: 201-069-1	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
(1-hydroxyethylidene)bisphosphonic acid, sodium salt (4 Na)	STP	20 mg/L	Fresh water	0,134 mg/L
	Soil	41 mg/kg	Marine water	0,014 mg/L
	Intermittent	Non-applicable	Sediment (Fresh water)	59 mg/kg
	Oral	12000 g/kg	Sediment (Marine water)	5,9 mg/kg
Subtilisin CAS: 9014-01-1 EC: 232-752-2	STP	65 mg/L	Fresh water	0,00006 mg/L
	Soil	0,568 mg/kg	Marine water	0,000006 mg/L
	Intermittent	0,0009 mg/L	Sediment (Fresh water)	Non-applicable
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

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 Protective Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protective 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 predicted 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 splash/projections.		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.- Body 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

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

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

Volatile organic compounds:

With regard to Directive 2010/75/EU, this product has the following characteristics:

V.O.C. (Supply):	0 % weight
V.O.C. density at 20 °C:	0 kg/m ³ (0 g/L)
Average carbon number:	Non-applicable
Average molecular weight:	Non-applicable

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 °C:	Solid
Appearance:	Tablets
Colour:	Characteristic
Odour:	Characteristic
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	Non-applicable *
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	<300000 Pa (300 kPa)
Evaporation rate at 20 °C:	Non-applicable *

Product description:

Density at 20 °C:	Non-applicable *
Relative density at 20 °C:	Non-applicable *
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:	10 - 11
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:	Water-soluble
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *

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

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Flammability:

Flash Point:	Non-applicable
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	400 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *

Explosive:

Lower explosive limit:	Non-applicable *
Upper explosive 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.

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	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Acids	Water	Combustive materials	Combustible materials	Others
Not applicable	Not applicable	Not applicable	Precaution	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 (CO₂), 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 the recommended occupational exposure limits, adverse effects on health may result, 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):

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SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- 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 contains substances classified as dangerous for inhalation. 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. However, it contains substances classified as dangerous with sensitising effects. For more information see section 3.
 - Cutaneous: 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.
- 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:
 - 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
Disodium carbonate, compound with hydrogen peroxide (2:3) CAS: 15630-89-4 EC: 239-707-6	LD50 oral	1034 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Sodium carbonate CAS: 497-19-8 EC: 207-838-8	LD50 oral	4090 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Citric Acid CAS: 77-92-9 EC: 201-069-1	LD50 oral	5400 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Zinc di(acetate) · 2H2O CAS: 5970-45-6 EC: 209-170-2	LD50 oral	794 mg/kg	Rat
	LD50 dermal	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:

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SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Acute toxicity	Species	Genus
Sodium carbonate CAS: 497-19-8 EC: 207-838-8	LC50 740 mg/L (96 h) EC50 265 mg/L (48 h) EC50 Non-applicable	Gambusia affinis Daphnia magna	Fish Crustacean
Disodium carbonate, compound with hydrogen peroxide (2:3) CAS: 15630-89-4 EC: 239-707-6	LC50 70.7 mg/L (96 h) EC50 4.9 mg/L (48 h) EC50 Non-applicable	Pimephales promelas Daphnia pulex	Fish Crustacean
Citric Acid CAS: 77-92-9 EC: 201-069-1	LC50 1516 mg/L (96 h) EC50 160 mg/L (48 h) EC50 Non-applicable	Lepomis macrochirus N/A	Fish Crustacean
Alcohols, C12-14, ethoxylated propoxylated CAS: 68439-51-0 EC: Non-applicable	LC50 10 - 100 mg/L (96 h) EC50 10 - 100 mg/L EC50 10 - 100 mg/L		Fish Crustacean Algae
Subtilisin CAS: 9014-01-1 EC: 232-752-2	LC50 0.1 - 1 mg/L (96 h) EC50 0.1 - 1 mg/L EC50 0.1 - 1 mg/L		Fish Crustacean Algae
Zinc di(acetate) · 2H2O CAS: 5970-45-6 EC: 209-170-2	LC50 0.1 - 1 mg/L (96 h) EC50 0.1 - 1 mg/L EC50 0.1 - 1 mg/L		Fish Crustacean Algae

12.2 Persistence and degradability:

Identification	Degradability	Biodegradability
Citric Acid CAS: 77-92-9 EC: 201-069-1	BOD5	Non-applicable
	COD	Non-applicable
	BOD5/COD	Non-applicable
	Concentration	10 mg/L
	Period	28 days
	% Biodegradable	97 %

12.3 Bioaccumulative potential:

Identification	Bioaccumulation potential
Citric Acid CAS: 77-92-9 EC: 201-069-1	BCF
	Pow Log
	Potential
	3
	-1.55
	Low

12.4 Mobility in soil:

Identification	Absorption/desorption	Volatility
Citric Acid CAS: 77-92-9 EC: 201-069-1	Koc	Henry
	Conclusion	Dry soil
	Surface tension	Moist soil
	Non-applicable	Non-applicable
	Non-applicable	Non-applicable
	2,045E-2 N/m (350,93 °C)	Non-applicable

12.5 Results of PBT and vPvB assessment:

Product fails to meet PBT/vPvB criteria

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 29*	detergents containing hazardous substances	Dangerous

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

HP4 Irritant — skin irritation and eye damage

Waste management (disposal and evaluation):

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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) No 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 2017 and RID 2017:

- 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 Environmental hazards:** 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 38-16:

- 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 Environmental hazards:** 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 2017:

Ludwik All in one - dishwasher tablets grapefruit

SECTION 14: TRANSPORT INFORMATION (continued)

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 Environmental hazards:	No
14.6 Special precautions for user	
Physico-Chemical properties:	see section 9
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:	Non-applicable

SECTION 15: REGULATORY INFORMATION

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

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable
 Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable
 Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable
 Article 95, REGULATION (EU) No 528/2012: Citric Acid (Product-type 2)
 REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Regulation (EC) No 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 a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, 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:

The supplier has not carried out evaluation of chemical safety.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

- CONTINUED ON NEXT PAGE -

SECTION 16: OTHER INFORMATION (continued)

This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830)

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

Non-applicable

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) No 1272/2008:

Acute Tox. 4: H302 - Harmful if swallowed

Acute Tox. 4: H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled

Aquatic Acute 1: H400 - Very toxic to aquatic life

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

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects

Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects

Eye Dam. 1: H318 - Causes serious eye damage

Eye Irrit. 2: H319 - Causes serious eye irritation

Ox. Sol. 3: H272 - May intensify fire, oxidiser

Resp. Sens. 1: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Skin Irrit. 2: H315 - Causes skin irritation

STOT SE 3: H335 - May cause respiratory irritation

Advice related to training:

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

Principal bibliographical sources:

<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 -