SAFETY DATA SHEET

Essiccum K

Ref: 53015/1.0/REG_USA/EU/EN

Revision Date: 15.7.2019 Previous Date: 15.7.2019 Print Date:15.7.2019

Section 1: Identification

1.1. Product identifier

Commercial Product Name**:** Essiccum K

REACH-registration number: Not relevant, Food additives

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture**:** Food additive

Recommended restrictions on use: None known.

1.3. Details of the supplier of the safety data sheet

Niacet b.v.
P.O. Box 60
4000 AB Tiel
NETHERLANDS
Telephone +31 344-615224, Telefax +31 344-611475
tiel@niacet.nl

Niacet Corporation
400 47th Street
Niagara Falls, NY
14304 USA
Telephone +1 716-285-1474, Telefax +1 716-285-1497
niacetcsr@niacet.com

1.4. Emergency telephone number

For Niacet b.v.Tiel, The Netherlands products: +31 344-615224
For Niacet Corporation, Niagara Falls, U.S.A. products: Chemtrec +1 (800) 424 9300, +1(703) 527-3887

Section 2: Hazard(s) Identification

2.1. Classification of the substance or mixture

USA: Classification according to 29 CFR 1910.1200 (CLP):
Serious eye damage/eye irritation; Category 1, Causes serious eye damage.
EU: Classification according to Regulation (EU) 1272/2008(CLP):
Serious eye damage/eye irritation; Category 1; Causes serious eye damage.

2.2. Label elements USA & EU (CLP):

Hazard pictograms:

Signal word: Danger

Hazard Statements: H318 Causes serious eye damage

Precautionary statement:	P264	Wash hands thouroughly after handling.
Prevention:	P280	Wear protective gloves/protective clothing/eye protection.
Response:	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P308	If exposed or concerned:
	P313	Get medical advice/attention.
Hazardous components which must be mentioned on the label:	CAS 126-96-5 Sodium diacetate	
Further information:	The product is classified and labelled in accordance with US and EC directives.	

2.3. Other hazards

May form explosible dust-air mixture if dispersed.

Section 3: Composition/Information on Ingredients:

3.2. Classification of the substance or mixture

Chemical nature: Solid

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification	Concentration (% w/w)
Citric acid anhydrous	77-92-9 201-069-1 01-2119457026-42-0000	Eye Irrit. 2; H319	<= 50
Sodium Diacetate	126-96-5 204-814-9 05-2114097778-25	Eye Dam. 1; H318	<= 50
Non-hazardous ingredients:			
Tripotassium citrate	6100-05-6 212-755-5 01-2119457580-38-0000		<= 50
Glucono-delta-lactone	90-80-2 202-016-5 01-2119451153-49-0000		<= 50

Section 4: First-Aid Measures

4.1. Description of first aid measures

General advice: Get medical advice/attention if you feel unwell.
Show this safety data sheet to the doctor in attendance.

Inhalation: Remove to person into fresh air.

Skin contact: Immediately flush skin with large amounts of water.

Eye contact: Remove contact lenses.
Rinse thoroughly with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

Ingestion: Drink plenty of water.
If swallowed, DO NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: Severe eye irritation.

Risks: Causes serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

Section 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water spray
Dry powder
Foam
Carbon dioxide (CO2)

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards from the substance or mixture

Specific hazards during firefighting: Do not use a solid water stream as it may scatter and spread fire.
Hazardous decomposition products formed under fire conditions.

Hazardous combustion products: Carbon dioxide (CO2)
Carbon monoxide

5.3. Advice for firefighters

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Further information: Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire and/or explosion do not breathe fumes.

Section 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Avoid contact with skin and eyes.
Avoid breathing dust.
Ensure adequate ventilation, especially in confined areas.

6.2. Environmental precautions

Environmental precautions; No special environmental precautions required.
Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Use mechanical handling equipment.
Keep in suitable, closed containers for disposal.
Clean contaminated surface thorouhgly.

6.4. Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

Section 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling: Avoid creating dust.
For personal protection see section 8.

Advice on protection against fire and explosion: Normal measures for preventive fire protection.

Hygiene mesures: Handle in accordance with good industrial hygiene and safety practice.
Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.

Dust explosion class: St1

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep in an area equipped with acid resistant flooring.
Store in original container.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Take measures to prevent the build up of electrostatic charge.

Advice on common storage: Incompatible with bases.

Other data: No decomposition if stored and applied as directed.

7.3. Specific end use(s)

Specific use(s): None

Section 8: Exposure controls/personal protection

8.1. Control parameters

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Citric acid anhydrous	Fresh water	0,44 mg/l
	Marine water	0,044 mg/l
	Fresh water sediment	7,53 mg/kg wet weight
	Marine sediment	0,752 mg/kg wet weight
	Soil	29,2 mg/kg wet weight

8.2. Exposure controls

Engineering measures: Provide adequate ventilation.

Personal protective equipment

Eye protection: Safety glasses
Ensure that eyewash stations and safety showers are close to the workstation location.

Hand protection: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturerer.

Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter. Half mask with a particle filter P2 (EN 143).

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Crystalline product
Colour:	White
Odour:	Vinegar-like
Odour threshold:	Not relevant
pH:	4,2 (concentration 1%)
Melting point/range:	No data available
Boiling point/boiling range:	Not applicable
Flash point:	Not applicable
Evaporation rate:	Not applicable
Upper explosion limit:	Not determined
Lower explosion limit:	Not determined
Vapour pressure:	Not applicable
Relative vapour density:	Not applicable

Relative density:	No data available
Bulk density:	800 – 900 kg/m^3 (Method: DIN 53468)
Solubility(ies)	
Water solubility:	700 g/l completely soluble
Partition coefficient (n-octanol/water):	No data available
Ignition temperature;	> 600 °C (Method: DIN 51794, active ingredient)
Decomposition temperature:	No data available
Viscosity	
Viscosity, dynamic:	Not applicable
Viscosity, kinematic:	Not applicable
Explosive properties:	Not applicable
Oxidizing properties:	No oxidising effect

9.2. Other information

Dust explosion class: St1

Section 10: Stability and reactivity

10.1. Reactivity

No decomposition if stored and applied as directed.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Cures in the presence of water or moisture, releasing a small amount of acetic acid. No decomposition if used as directed.

10.4. Conditions to avoid

Conditions to avoid: Dust formation, moisture.

10.5. Incompatible materials

Materials to avoid: Strong bases, oxidizing agents.

10.6. Hazardous decomposition products

Irritant, caustic, flammable, noxious/toxic gasses and vapours can develop in the case of fire and decomposition:	Acetic acid Carbon dioxide (CO2) Carbon monoxide

Section 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (components):

Citric acid anhydrous:

Acute oral toxicity:	LD50 Oral (Mouse):	5.400 mg/kg body weight[1)]
	LD50 Oral (Rat):	11.700 mg/kg body weight[1)]
Acute dermal toxicity:	LD50 Dermal (Rat):	> 2.000 mg/kg body weight
Acute toxicity (other routes of administration):	LD50 (Rat):	725 mg/kg[2)]
	LD50 (Mouse):	940 mg/kg[2)]

Sodium Diacetate:

Acute oral toxicity:	LD50 Oral (Rat):	>= 5.560 mg/kg
	No adverse effect has been observed in acute toxicity tests.	

Tripotassium citrate:

Acute oral toxicity:	LD50 Oral (Mouse):	5.400 mg/kg body weight[1)3)]
Acute inhalation toxicity:	No data available	
Acute dermal toxicity:	LD50 Dermal (Rat, male and female)	> 2.000 mg/kg body weight[3)]

Glucono-delta-lactone:

Acute oral toxicity:	LD50 (Rat, male and female):	6.060 mg/kg[1)4)\]
Acute dermal toxicity:	LD50 (Rat, male and female):	> 2.000 mg/kg[5)6)]
	GLP: yes	

1) Method: OECD Test Guideline 401
2) Application Route: i.p.
3) Test substance: Non neutralised product
4) Test substance: Potassium Gluconate
5) Method: OECD Test Guideline 402
6) Test substance: Gluconic Acid

Skin corrosion/irritation (components):

Citric acid anhydrous:

Species: Rabbit	Result: No skin irritation[1)]
	May cause skin irritation in susceptible persons.

Sodium Diacetate:

Species: Rat	Result: No skin irritation[1)] (exposure time 72h)
	GLP: yes

Tripotassium citrate:

Species: Rabbit	Result: No skin irritation
	Information given is based on data obtained from similar substances.

Glucono-delta-lactone:

Species: Rabbit — Result: No skin irritation[1)2)]
GLP: yes

1) Method: OECD Test Guideline 404
2) Test substance: Gluconic Acid

Serius eye damage/eye irritation (components):

Citric acid anhydrous:

Species: Rabbit — Result: Irritating to eyes[1)]

Sodium Diacetate:

Species: Rat — Result: Irreversible effects on the eye[1)] (exposure time 21d)
GLP: yes

Tripotassium citrate:

Species: Rabbit — Result: No eye irritation[1)]
Information given is based on data obtained from similar substances.

Glucono-delta-lactone:

Species: Rabbit — Result: No eye irritation[1)2)]
GLP: yes

1) Method: OECD Test Guideline 405
2) Test substance: Gluconic Acid

Respiratory or skin sensitisation (components):

Citric acid anhydrous: No data available

Sodium Diacetate: No data available

Tripotassium citrate:

Species: Guinea pig — Result: Did not cause sensitisation on laboratory animals.[1)]
Information given is based on data obtained from similar substances.

Glucono-delta-lactone:

Species: Mouse — Result: Did not cause sensitisation on laboratory animals.[2)3)]
GLP: yes

1) Method: OECD Test Guideline 406
2) Method: OECD Test Guideline 429
3) Test substance: Gluconic Acid

Germ cell mutagenicity (components):

Citric acid anhydrous:

Genotoxicity in vitro	Ames test (Salmonella typhimurium)	Result: negative[1)] Concentration 0 – 5 mg/plate
Genotoxicity in vivo	In vivo assay (Rat)	Result: negative[2)]

Germ cell mutagenicity – assessment:	Invitro tests did not show mutagenic effects	

Sodium Diacetate:

Genotoxicity in vitro:	No data available	
Genotoxicity in vivo:	No data available	
Germ cell mutagenicity – assessment:	No data available	

Tripotassium citrate:

Genotoxicity in vitro:	Ames test (Salmonella typhimurium)	Result: negative[1)] Concentration 0.0 – 10 mg/plate
Genotoxicity in vivo:	In vivo assay (Rat, male)	Result: negative[2)3)]
Germ cell mutagenicity – assessment:	In vitro tests did not show mutagenic effects	

Glucono-delta-lactone:

Germ cell mutagenicity – assessment:	Tests on bacterial or mammalian cell cutrures did not show mutagenic effects.

1) Method: Mutagenicity (Salmonella typhimurium – reverse mutation assay)
2) Method: OECD Test Guideline 475, application route: oral
3) Test substance: Non neutralised product

Carcinogenicity (components):

Citric acid anhydrous:

Carcinogenicity – assessment:	Not classifiable as a human carcinogen.
Sodium Diacetate:	This information is not available.

Tripotassium citrate:

Carcinogenicity – assessment:	Not classifiable as a human carcinogen.

Glucono-delta-lactone:

Carcinogenicity – assessment:	Did not show carcinogenic or teratogenic effects in animal experiments.

Reproductive toxicity (components):

Citric acid anhydrous:

Reproductive toxicity – assessment:	No toxicity to reproduction.

Sodium Diacetate:
Reproductive toxicity – assessment: No data available.

Tripotassium citrate:
Reproductive toxicity – assessment: No toxicity to reproduction.

Glucono-delta-lactone:
Reproductive toxicity – assessment: No toxicity to reproduction.

STOT – single exposure (components):

Citric acid anhydrous: No data available.

Sodium Diacetate: No data available.

Tripotassium citrate: No data available.

STOT – repeated exposure (components):

Citric acid anhydrous: No data available.

Sodium Diacetate: No data available.

Tripotassium citrate: No data available.

Repeated dose toxicity (components):

Citric acid anhydrous: NOAEL oral (Rat): 4.000 mg/kg (exposure time 10d)[1)]
LOAEL oral (Rat): 8.000 mg/kg (exposure time 10d)[1)]

Sodium Diacetate: No data available.

Tripotassium citrate: NOAEL oral (Rat): 8.000 mg/kg (exposure time 10d)[1)2)]
LOAEL oral (Rat): 16.000 mg/kg (exposure time 10d)[1)2)]

Glucono-delta-lactone: LOAEL oral (Rat): 250 mg/kg[3)4)]

1) Dose: 2,4,8,16 g/kg bw/day
2) Test substance: Non neutralised product
3) Method: OECD Test Guideline 408
4) Test substance: Glucono-delta-lactone

Aspiration toxicity (components):

Citric acid anhydrous: No aspiration toxicity classification.

Sodium Diacetate: No data available.

Tripotassium citrate: No aspiration toxicity classification.

Further information (components):

Sodium Diacetate: According to concentration, aqueous solution causes irritation or burns of eyes, skin and mucous membranes.

Section 12: Ecological information

12.1. Toxicity

Product:

Toxicity to fish: No adverse effect has been observed in acute toxicity tests.
Information refers to the main component.

Citric acid anhydrous:

Toxicity to fish:	LC50 (Leuciscus idus (Golden orfe)) Exposure time: 48h	440 mg/l[1)2)]
Toxicity to daphnia and other aquatic invertebrates:	LC50 (Daphnia magna (Water flea)): Exposure time: 24h	1.535 mg/l[1)]
Toxicity to algae:	NOEC (Scenedesmus quadricauda (Green algae)): Exposure time: 8d	425 mg/l[1)]
Toxicity to microorganisms:	TT (Pseudomonas putida): Exposure time: 16h	> 10.000 mg/l

Sodium Diacetate:

Toxicity to fish:	(Leuciscus idus (Golden orfe)):	410 mg/l[3)]
Toxicity to algae:	No data available.	
Toxicity to microorganisms:	No data available.	

Tripotassium citrate:

Toxicity to fish:	LC50 (Oncorhynchus tshawytscha (chinook salmon)): Exposure time: 24h Information given is based on data obtained from similar substances.	> 10 mg/l[4)]
	LC50 (Leuciscus idus (Golden orfe)): Exposure time: 48h	440 mg/l[1)3)]
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Dreissena polymorpha): Exposure time: 48h Information given is based on data obtained from similar substances.	> 50mg/l[1)]

Toxicity to algae:	NOEC (Scenedesmus quadricauda (Green algae)): Exposure time: 8d	425 mg/l[1)3)5)]
Toxicity to microorganisms:	TT (Pseudomonas putida): Exposure time: 16h	> 10.000 mg/l[3)]
Glucono-delta-lactone:		
Toxicity to fish:	NOEC (Oryzias latipes (Orange-red killifish)): Exposure time: 96h	100 mg/l[2)4)6)]
	LC50 (Oryzias latipes (Orange-red killifish)): Exposure time: 96h	> 100 mg/l[2)4)6)]
	LC50 (Fish): Exposure time: 48h	360 mg/l[2)7)]
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (Water flea)): Exposure time: 48h GLP: yes	> 1.000 mg/l[1)6)8)]
Toxicity to algae:	EC0 (Desmodesmus subspicatus (green algae)): Exposure time: 72h	<= 100 mg/l[1)6)9)]
Toxicity to microorganisms:	NOEC Exposure time: 3h	100 mg/l[7)10)11)]
	EC50 Exposure time: 3h	649,8 mg/l[7)10)11)]

1) Test type: static test
2) Method: OECD Test Guideline 203
3) Test substance: Non neutralised product
4) Test type: semi-static test
5) Method: No information available
6) Test substance: Sodium gluconate
7) Test substance: Glucono-delta-lactone
8) Method: OECD Test Guideline 202
9) Method: OECD Test Guideline 201
10) Test type: Respiration inhibition of activated sludge
11) Method: OECD Test Guideline 209

12.2. Persistence and degradability

Citric acid anhydrous:

Biodegradability:	Biodegradation: 97%[1)]	Readily biodegradable
	Biodegradation: 100%[2)]	Readily biodegradable
Biochemical Oxygen Demand (BOD):	526 mg/g	
Chemical Oxygen Demand (COD):	728 mg/g	
Physico-chemical removability:	Readiliy biodegradable	

Sodium Diacetate:

Biodegradability:	Biodegradation: > 90% (Zahn-Wellens Test)[3)] Exposure time: 2d	Readily biodegradable, according to approprioate OECD test.
Physico-chemical removability:	Readily biodegradable	

Tripotassium citrate:

Biodegradability;	Biodegradation: 97%[1)4)] Exposure time: 28d	Readily biodegradable
	Biodegradation: 100% Information given is based on data obtained from similar substances.	
Physico-chemical removability:	Readily biodegradable	

Glucono-delta-lactone:

Biodegradability:	Kinetic: 98,3% (Zahn-Wellens Test)[3)5)] Exposure time: 3d Inoculum: activated sludge	Inherently biodegradable
	Kinetic: 89% (Test Type: aerobic)[5)6)] Exposure time: 28d	Readily biodegradable
	Kinetic: 100% (Test Type: anaerobic)[5)7)] Exposure time: 35d	100% anaerobically biodegradable
Biochemical Oxygen Demand (BOD):	698 mg/g (within 5 days)	
Chemical Oxygen Demand (COD):	987 mg/g	

1) Method: OECD Test Guideline 301B
2) Method: OECD Test Guideline 301E
3) Method: OECD Test Guideline 302
4) Test substance: Non neutralised product
5) Test substance: Sodium gluconate
6) Method: OECD Test Guideline 301D

[7] Method: OECD Test Guideline 311

12.3. Bioaccumulative potential

Product:

Bioaccumulation:	Does not bioaccumulate
Partition coefficient: n-octanol/water	No data available.

Citric acid anhydrous:

Bioaccumulation:	The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Sodium Diacetate:

Bioaccumulation:	The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Tripotassium citrate:

Bioaccumulation:	The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.
Partition coefficient: n-octanol/water	log Pow: -1,8 - -0,2

12.4. Mobility in soil

Sodium diacetate:

Mobility:	No data available.
Distribution among environmental compartments:	No data available.

12.5. Results of PBT and vPvB assessment

Citric acid anhydrous:

Assessment:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Sodium Diacetate:

Assessment:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Tripotassium citrate:

Assessment:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very

bioaccumulating (vPvB).

12.6. Other adverse effects

Product:

Additional ecological information: The product should not be allowed to enter drains, water courses or the soil.

Citric acid anhydrous:

Additional ecological information: This product has no known ecotoxicological effects.

Tripotassium citrate:

Additional ecological information: This product has no known ecotoxicological effects.

Section 13: Disposal considerations

13.1. Waste treatment methods

Product: Where possible recycling is preferred to disposal or incineration.
Can be landfilled or incinerated, when in compliance with local regulations.

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

Section 14: Transport information

14.1. UN number **Not regulated as a dangerous good.**

14.2. UN proper shipping name **Not regulated as a dangerous good.**

14.3. Transport hazard class(es) **Not regulated as a dangerous good.**

14.4. Packing group **Not regulated as a dangerous good.**

14.5. Environmental hazards **Not regulated as a dangerous good.**

14.6. Special precautions for user **Not applicable.**

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code **Not applicable for product as supplied.**

Section 15: Regulatory information

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. Not applicable.

The components of this product are reported in the following inventories:

EINECS: On the inventory, or in compliance with the inventory.

TSCA: On TSCA inventory.

AICS:	On the inventory, or in compliance with the inventory.
DSL:	All components of this product are on the Canadian DSL.
NZIoC:	On the inventory, or in compliance with the inventory.
KECI:	On the inventory, or in compliance with the inventory.
ENCS:	On the inventory, or in compliance with the inventory.
PICCS:	On the inventory, or in compliance with the inventory.
IECSC:	On the inventory, or in compliance with the inventory.
REACH:	On the inventory, or in compliance with the inventory.

15.2. Chemical safety assessment
Chemical Safety Assessments have been carried out for these substances.

Section 16: **Other information**

Full text of H-Statements

H318	Causes serious eye damage.
H319	Causes serious eye irritation.

Last revised on July 18. 2019 by Niacet EHSQ department

Further information
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.