



**Back To Your Roots Soil Solutions Inc.**

**High Brix Manufacturing Inc.**

**Organic Paperwork for Verification 2026**

**Diverse-A-Tea**

March 1, 2026

To Whom it Concerns

Diversity-A-Tea Brewing Services is an independently owned company that contracts and provides the service of brewing microbial tea.

The process of brewing is a well studied and systematic process to remove and extract microbes from sources, incubate and proliferate microbial life in a water solution. End use includes acceleration of compost production, application to forages, plants and soil. Dr. Elaine Ingham has done extensive research on the making and the use of compost teas, "Teaming with Microbes" is an excellent resource for individuals that are looking for additional information about this practice of brewing, uses and ingredients.

The brewing process used by Diverse-a-Tea Brewers starts with water treated with 5 mechanical processes to aerate, heat, and energize prior to the brewing. The aeration process includes the use of atmospheric air to reach the aeration point identifier for best brewing conditions based on temperature, microbe populations, etc. Following the aeration processes, the water is transferred to the brewing tank. Products identified by the contractor are added at this point. This is brewed using forced atmospheric air for a period of 24 hours. At the end of the brewing process, the tea is strained, stabilized to a pH of approximately 4.0 with citric acid and transferred to plastic totes.

Cleaning of the equipment occurs following each batch with the use of peroxide to clean and disinfect and a double rinse with clean water.

The contract used for this service is included in this package, along with a disclaimer form, and an information sheet about what ingredients can be used to establish bacterial or fungal dominant teas.

The brewer does have access to several different brewing ingredients used in the brewing process. Paperwork needed to substantiate organic use will need to be verified by the producer with their own certifier. These papers will be made available upon request.

Sincerely,

Greg Moline, Owner of Diverse-A-Tea Brewing Services.

# Diverse-A-Tea Brewing Services Inc.

25147 TWP 490  
Leduc County, AB T4X 2N4  
Phone: 587-671-0111

**No: 2000**

Sold To: \_\_\_\_\_

Deliver To: \_\_\_\_\_

Date Required: Spring 2026

I, \_\_\_\_\_ request Diverse-A-Tea Brewers Inc. to brew aerobic microbial tea. I agree I will be responsible for the end use of the microbial tea. This will include proper disposal of all unused tea and storage containers according to any provincial and federal requirements.

I agree that I will supply the ingredients for the tea outlined below:

\_\_\_\_\_ Microbial Tea Starter - includes starter product, molasses and phosphoric acid

**Organic Microbial Tea Starter** - ingredient list and organic supporting paperwork available upon request

\_\_\_\_\_ Other starter products listed below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Signature:** \_\_\_\_\_

QUANTITY	DESCRIPTION	UNIT COST	AMOUNT
1	#1 - 1,000 litre tote (264 US gallons) <b>*(Organic)</b>	\$775.00	\$775.00
1	Shipping and handling per tote	\$170.00	\$170.00
	<b>Subtotal</b>		\$945.00
	<b>GST - 5%</b>		\$47.25
	<b>TOTAL</b>		<b>\$992.25</b>

**Bulk shipments are available upon request**

**Disclaimer:** Buyer assumes all risk of use, storage and handling of this material. Neither seller nor its agent makes any warranty, expressed or implied, concerning this product, except in conformity with statements on the contract.

**Salesperson Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Customer Signature:** \_\_\_\_\_

# Diverse-A-Tea Brewing Services

Date:

Contract Number 2000

Customer Name:

Address:

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Attached is an Order Form for the brewing service for the Microbial Tea. Please sign this document and the order form, retain copies for your records and return the top copies with your payment.

Diverse-a-Tea Brewing Service is a privately owned company that provides only the service of brewing aerobic microbe tea. We use a protected process to aerate and brew tea and then stabilize the microbes for storage and shipping.

We take no responsibility for the contents of the product, use of the product, nor for the disposal of any remaining product or containers. Please refer to your local, municipal, and provincial guidelines for more information. We only use ingredients requested and provided by our customers.

In order to ensure quality of your Microbial tea, our customers must identify what ingredients they want included in the tea. Customers requiring organic tea must identify any protocols for cleaning or ingredients prior to ordering the service. Use of Phosphoric acid is required to stabilize the tea after brewing. Please contact your rep. for information about ingredients often used in microbial tea.

I have read and understand the above information:

Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Customer Printed Name: \_\_\_\_\_

**For more information about compost teas, microbial teas, or microbes of the soil, please refer to the following resources:**

## **Teaming with Microbes**

Authors: Jeff Lowenfels and Wayne Lewis, with foreword by Dr. Elaine Ingham.

## **Adding Biology**

Author: Dr. Elaine Ingham and Carole Ann Rollins

## **Compost Tea Brewing Manual 5th Ed. Elaine Ingham**

## **Soil Biology Primer**

Authors: Dr. Elaine Ingham, Andrew R. Moldenke & Clive A. Edwards



**Back To Your Roots Soil Solutions**

**High Brix Manufacturing**

**Organic Paperwork for Verification 2026**

**Verified Tea Starter Ingredient List:**

**Worm Castings**

**Molasses**

**Humic Acid**

**Micronized Soft Rock**

**Citric Acid**



## INPUTS VERIFICATION SERVICE

N° 219688-20231221-2111

### Earthly Matters

1302 15th Avenue T1M 1K7 Coaldale Alberta - Canada

## RESULT OF THE DOCUMENTARY EVALUATION

According to Canadian Organic Standards\*

Issued: 21 December 2023

Expires: 24 March 2025

Ecocert Canada has reviewed the declared formulae for the products listed below against the National Standard of Canada on Organic Production Systems and Permitted Substances Lists (CAN/CGSB 32.310, CAN/CGSB 32.311 and CAN/CGSB 32.312).

Ecocert Canada has verified that all the declared ingredients appear on the Permitted Substances Lists (CAN/CGSB-32.311) applicable sections and are compliant with any restrictions regarding their production and composition.

Ecocert Canada has also verified that the declared processes used in the manufacture of this/ these products and its/ their ingredients are compliant with section 1.4, 1.5 and section 6.4.4 of CAN/CGSB-32.310.

When restrictions apply regarding the use of such substances, they are indicated in the table in annex.

We remind you **no reference to Ecocert Canada is allowed**

This document is valid until its expiration date. A new evaluation is required every year.

**Organic operators must check with the certifier before using any input.**

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*\*pursuant to the standards CAN/CSGB 32.310 - General Principles and Management Standards, the CAN/CSGB 32.311 - Permitted Substances Lists and CAN/CSGB 32.312-Aquaculture – General principles, management standards and permitted substances lists.*



## INPUTS VERIFICATION SERVICE

N° 219688-20231221-2111

### Earthly Matters

1302 15th Avenue T1M 1K7 Coaldale Alberta - Canada

## ANNEX

Issued: 21 December 2023

Expires: 24 March 2025

### Inputs reviewed according to Canadian Organic Standards\*

Inputs reviewed for the trademark: Earthly Matters

INPUT(S)	APPLICABLE SECTION	RESTRICTION
> Worm Castings	32.311_4.2 - Substances for crop production, Column 1 -Soil Amendements	

*\*pursuant to the standards CAN/CSGB 32.310 - General Principles and Management Standards, the CAN/CSGB 32.311 - Permitted Substances Lists and CAN/CSGB 32.312-Aquaculture – General principles, management standards and permitted substances lists.*

This annex is not valid without the evaluation letter to **Earthly Matters** , dated **21 December 2023**.

Organic operators must check with the certifier before using any input.



## Organic Certificate

**Certified Operation:** Buffalo Molasses, LLC

**Mailing Address:** PO Box 74  
E Aurora, NY, 14052

**Category:** Handler

**Certificate #:** 2125801

**Site Address:** Buffalo Molasses, LLC: 1830 Perry Road, N. Java, NY, 14113, USA

**(See addendum for details)**

Certified to the USDA organic regulations, 7 CFR Part 205. Once certified a production or handling operation's organic certification continues in effect until surrendered, suspended, or revoked.

Effective Date: 10/11/2021

Issue Date: 11/03/2023

Anniversary Date: 06/01/2024

Vinodthan Nayagar  
Director of Organic Divisions



# ADDENDUM

## TO ORGANIC CERTIFICATE #2125801

Void without certificate

**Certified Operation:** Buffalo Molasses, LLC  
**Mailing Address:** PO Box 74  
E Aurora, NY, 14052  
**Category:** Handler

### PRODUCTS CERTIFIED

PRODUCTS	ID MARK	STANDARD	EFFECTIVE DATE
<b>Organic:</b> Molasses 72 DM	N/A	NOP;US-CANADA*	10/11/2021

\*Certified in accordance with the terms of the US-CANADA Organic Equivalency Arrangement

Effective Date: 10/11/2021  
Issue Date: 11/03/2023  
Anniversary Date: 06/01/2024

Vinodthan Nayagar  
Director of Organic Divisions



*Attestation Number: 8029-INP-24*  
*Initial Effective Date: 21-Mar-2022*  
*Attestation Expiry Date: 31-Mar-2025*

## **Attestation of Input Compliance**

*This attestation is based on the compliance of products which are approved for use in organic production, at the discretion of the operator's certification body, with the national organic standards of Canada CAN/CGSB-32.310 and 32.311.*

This attestation expires on the date noted above or until it is suspended or cancelled by the Centre for Systems Integration.

### **High Brix Manufacturing Inc.**

25147 Township Road 490  
Leduc County, AB, T4X 2N4, Canada.

**This attestation confirms the compliance of the products as per the attached list.**

**Input Supplier #: 8029-INP**

A handwritten signature in blue ink, appearing to read 'Ryan W. K.', is written over a horizontal line.

Signature of CSI Representative

31-Mar-2024

Issue Date

**Certification Body:**

**The Centre for Systems Integration (CSI)\***  
85 Albert Street, Suite 1100  
Ottawa, Ontario, Canada K1P 6A4  
1-800-516-3300



**CSI**  
Centre for Systems Integration

Input Supplier: High Brix Manufacturing Inc.  
 Input Supplier Number: 8029-INP  
 Attestation Number: 8029-INP-24  
 Issue Date: 31-Mar-2024

**LIST OF PRODUCTS APPROVED FOR USE IN ORGANIC PRODUCTION**

*An operator intending to use any product listed below as approved for use in organic production under the Canadian organic standards, CAN/CGSB-32.310 and CAN/CGSB-32.311, must verify with their certification body that the product is acceptable for use prior to incorporation into the organic system plan.*

PRODUCT	Intended use (CF=crop fertility; CP=crop protection; LF=Livestock feed; LH=Livestock healthcare; P=Processing input)	BRAND NAME	RESTRICTIONS
Ful-Humix	CF	BIOAG	Shall not cause a build-up of heavy metals or micronutrients in soil.
Ful-Humix L	CF	BIOAG	Shall not cause a build-up of heavy metals or micronutrients in soil.
Ful-Power	CF	BIOAG	Shall not cause a build-up of heavy metals or micronutrients in soil.
Miicronized Soft Rock Phosphate	CF	High Brix Manufacturing	
Zumsil	CF	High Brix Manufacturing /Terra Tech	To be used when soil and plant silica deficiencies are documented by visual symptoms or by testing of soil and/or plant tissue, or when the need for a preventative application can be documented.
GSR Calcium Genesis Soil Rite Dormant Mix	CF	Soil Works	
GSR Calcium Genesis Soil Rite Growing Mix	CF	Soil Works	

REPORT NO.  
C20323-70014

ACCOUNT NUMBER  
95000

# A & L Canada Laboratories Inc.

2136 Jetstream Road, London, ON, N5V 3P5 Tel: (519) 457-2575 Fax: (519) 457-2664



TO:BACK TO YOUR ROOTS SOLUTIONS  
BOX 1236  
SHELLBROOK, SK S0J 2E0

Phone:519-457-2575

## CERTIFICATE OF ANALYSIS

PAGE: 1 / 2

PROJECT NO:  
PO#:  
LAB NUMBER:3237026  
SAMPLE ID:ROCK PHOSPHATE

SAMPLE MATRIX:SOLID  
DATE SAMPLED:NONE GIVEN  
DATE RECEIVED:2020-11-18  
DATE REPORTED:  
DATE PRINTED:2020-11-25

PARAMETER	RESULT	UNIT	DETECTION LIMIT	METHOD REFERENCE
Arsenic	21	ug/g	1	EPA 3050B/6010B(mod) *
Total Phosphorus (as P205)	22.49	%	0.05	ICP
Cadmium	1.20	ug/g	0.50	EPA 3050B/6010B(mod) *
Chromium	86.40	ug/g	1.00	EPA 3050B/6010 (mod) *
Cobalt	2.92	ug/g	1.00	EPA 3050B/6010 (mod) *
Copper	42.30	ug/g	1.00	EPA 3050B/6010 (mod)*
Lead	7	ug/g	1	EPA 3050B/6010B(mod) *
Mercury	0.1	ug/g	0.1	EPA 7471 *
Molybdenum	19.1	ug/g	1.0	EPA 3050B/6010 (mod)*
Nickel	64.20	ug/g	1.00	EPA 3050B/6010 (mod) *
Selenium	BDL	ug/g	1.00	EPA 3050B/6010 (mod) *
Vanadium	38.67	ug/g	1.00	EPA 3050/6010 (mod)*
Zinc	111.40	ug/g	1.00	EPA 3050B/6010 (mod)*

Comment:

Results reported on a dry weight basis

\* - accredited test

BDL - Below detectable levels

The results of this report relate to the sample submitted and analyzed.



C20323-70014

Results Authorized By:

Haifeng Song, Ph.D., C.Chem. Lab Director

A&L Canada Laboratories Inc. is accredited by the Standards Council of Canada for specific tests as listed on [www.scc.ca](http://www.scc.ca) and by the Canadian Association for Laboratory Accreditation as listed on [www.cala.ca](http://www.cala.ca)

Additional information available upon request

This Certificate of Analysis has been prepared for use by the Recipient only. Possession of this Certificate of Analysis, does not carry with it the right to reproduction or publication in whole or in part nor may it be used by anyone other than the Recipient without the prior written consent and approval of A & L Canada Laboratories Inc. ("A&L Canada"). Upon receipt of this Certificate of Analysis by the Recipient from A&L Canada, A&L Canada shall not be responsible for and no claim shall be advanced against A&L Canada as a result of the unauthorized reproduction, use or distribution of this Certificate of Analysis.

# MATERIAL SAFETY DATA SHEET

## Micronized Soft Rock

**EMERGENCY CALL 911 or CANUTEC: 1-(613) 996-6666 or \* 666 on cell phones**

### Section 1: Product Information

Manufacturers name and Address:  
High Brix Manufacturing Inc.  
25147 TWP 490  
Leduc County, Alberta, T4X 2N4

Trade Name: Micronized Soft Rock  
Synonyms: Phosphate Rock (minerals rock); apatite rock deposit; soft rock phosphate; organic rock phosphate.

**In case of emergency call 911 or Canutec: 1 (613) 996-6666 or \*666 on your cell phone**

### 2. Hazardous Ingredients

Component	CAS No.	%	Exposure Limits	Hazard
Not Applicable				

### 3. Physical Data

-Boiling Point: N/A	-Vapour Density: N/A
-Freezing Point: Decomposes	-Evaporation Rate: N/A
-Vapour Pressure: N/A	-Appearance and Odour: Brown powdered rock

### 4. Fire and Explosion Hazard Data

Flammable Limits in air(upper):No Data	Flash Point (Degrees F):
Flammable Limits in air(lower):No Data	Means of extinction: Use water, CO2, dry chemical foam

Unusual Fire and Explosion Hazards: Avoid production in a dusty area where there is electrical or local burning.

### 5. Reactivity Data

Stability: Very Stable when dry  
Conditions of reactivity: Temperatures in excess of 150 degrees C.  
Materials to avoid: Bases and Hypochlorite's  
Hazardous Decomposition Products: Ammonia, Carbon Monoxide, Cyanuric Acid and sulphur dioxide.

### 6. Toxicology Properties

Avoid contact with eyes, mouth or excess dust in ear cavities. May also cause irritation to skin upon contact. Also can cause lung damage, if dust is consumed on a regular basis due to the silica content.  
Carcinogenicity: None of the materials are carcinogens.

### 7. Preventive Measures

**Control measures:** Ventilate to control dust.  
**Respiratory Protection:** A NIOSH or MSHA approved respirator should be worn when dust levels exceed 15 mg/m3  
**Protective Clothing:** Normal clothing or coveralls, rubber gloves.  
**Eye Protection:** Wear Safety glasses or goggles to avoid eye contact.  
**Spill or Leak Precautions:** Sweep, shovel or vacuum into sealable waste containers. Flush area with plenty of water. Prevent contamination of sewers, streams, lakes, ponds and domestic waterways.  
**Waste Disposal:** Dispose of in accordance with local, provincial and federal regulations. Return recovered material to manufacturer for recycling or reprocessing.  
**Storage and Handling Precautions:** Keep out of reach of children. Store in a dry place. Do not store with seeds or foodstuffs. Avoid direct and prolonged contact with skin.

### 8. First Aid Measures

**Primary Route of Exposure:** Skin or eye contact, inhalation.  
If inhaled: Move victim to fresh air.  
**In case of eye contact:** Flush immediately with large amounts of water for 15 minutes. Seek attention if irradiation persists.  
**In case of skin contact:** Wash with soap and water. Flush affected areas with large amount of cold water. Contaminated clothing should be washed.  
**If Swallowed:** Signs and symptoms: Excess ingestions must occur before any health hazard results. Effects of overexposure may include nausea, vomiting, diarrhea, weakness or convulsions. Treatment: For large amounts, seek medical attention.

### 9. Preparation Date

Cindy Moline, High Brix Manufacturing 1-306-747-4744 2021-01-25



# ORTHODOX UNION

## LETTER OF KOSHER CERTIFICATION

בס"ד

UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA איחוד קהילות האורתודוקסים באמריקה  
 FORTY RECTOR STREET / NEW YORK, NY 10006 / 212-613-8241 / KOSHERLETTER@OU.ORG / OUKOSHER.ORG

May 11, 2023

This is to certify that the following product(s) prepared by

**Shandong Ensign Industry Co., LTD., No. 1567 Changsheng Street, Changle, Weifang, Shandong, - 262499 P.R. CHINA**

at the following facility(ies) are under the supervision of the Kashruth Division of the Orthodox Union and are kosher as indicated below.

**Shandong Ensign Industry Co., LTD. [CIQ#:3709001588], No. 1567 Changsheng Street, Changle, Weifang, Shandong, P.R. CHINA**

Product Name	UKD-ID	Status	Certification Requirements
<b>Brand: Ensign</b>			
• Calcium Citrate	OUV3-AE615F2	Pareve	Ⓢ Symbol required.
• Citric Acid	OUV3-969FA2A	Pareve	Ⓢ Symbol required.
• Citric Acid Anhydrous	OUV3-K2J1V8Y	Pareve	Ⓢ Symbol required.
• Citric Acid Monohydrate	OUV3-NHYMLD5	Pareve	Ⓢ Symbol required.
• Ethanol	OUV3-AD5BF49	Pareve	Ⓢ Symbol required.
• Potassium Citrate	OUV3-3CE117C	Pareve	Ⓢ Symbol required.
• Sodium Citrate	OUV3-FE7A78B	Pareve	Ⓢ Symbol required.

Use of the OU trademark must comply with the terms set forth in a written agreement with the Orthodox Union. Any other use of the OU trademark is not authorized.

Rabbi Menachem Genack, *Rabbinic Administrator, CEO*

This certification is valid through 05/31/2024

# CERTIFICATE OF REGISTRATION

Intertek Certification Ltd (UKAS 014) certifies that, having conducted an audit **for the Scope of Activities:** Production of food additives-citric acid, calcium citrate, sodium citrate and potassium citrate packed in plastic bag.

With the Exclusions from Scope: None  
In the Product Categories: 15 - Dried foods and ingredients  
at

## SHANDONG ENSIGN INDUSTRY CO.,LTD.

BRCGS Site Code: 2015764

**Site Address:** No. 1567, Changsheng Street, Changle County, Weifang City, Shandong Province, 262499, P. R. China.

**Has achieved Grade: A+**

Meets the requirements set out in the

**GLOBAL STANDARD  
for FOOD SAFETY**

**ISSUE 9: AUGUST 2022**

Audit Programme: Unannounced



**Auditor Number:**  
24531

**Certificate Number:**  
051A2002002

**Dates of Audit:**  
07-09 Feb 2023

**Certificate Issue Date:**  
13 Mar 2023

**Re-audit Due Date:**  
(An.): 26 Apr 2024 to 24 May 2024  
(Unan.): 24 Jan 2024 to 24 May 2024

**Certificate Expiry Date:**  
05 Jul 2024



**intertek**  
**BRCGS**

Food Safety

**CERTIFICATED**



014

**Calin Moldovean**  
President Business Assurance

Intertek Certification Ltd – 10a Victory Park,  
Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a  
UKAS accredited body under  
schedule of Accreditation No. 014



## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

**Trade name:** Citric Acid Monohydrate**CAS number:**

5949-29-1

**EC number:**

201-069-1

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

**Application of the substance / the preparation:**

Intermediate

Formulation

Detergents and cleaning products

Agricultural applications

Personal care products

Paper industry

Construction products

Polymers and plastics

Oil industry

Textile industry

Paints and coatings

Photography products

Laboratory reagents

Water treatment

Treatment of metal surfaces

Medical devices

#### 1.3 Details of the supplier of the safety data sheet

**Manufacturer/Supplier:**

Weifang Ensign Industry Co., Ltd.

No.1567, Changsheng Street, Changle, Weifang, Shandong, China

Tel: +86-536-6298125

Fax: +86-536-6234587 ext. 8125

E-mail: sales@ensignworld.com

www.ensignworld.com

#### 1.4 Emergency telephone number(s): 0086-536-6298125

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**

Eye Irrit. 2 H319 Causes serious eye irritation.

#### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008:**

The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms:**

GHS07

**Signal word:** Warning

## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate**Hazard statements:**

H319 Causes serious eye irritation.

**Precautionary statements:**

P264 Wash thoroughly after handling.

P280 Wear eye protection / face protection.

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.

**2.3 Other hazards****Results of PBT and vPvB assessment****PBT:** No PBT.**vPvB:** No vPvB.**SECTION 3: Composition/information on ingredients****3.1 Substances****CAS Number. Description.**

5949-29-1 Citric Acid Monohydrate

**Identification number(s)****EC number:** 201-069-1**SECTION 4: First aid measures****4.1 Description of first aid measures****After inhalation:** Move patient to fresh air, if symptoms persist consult a doctor.**After skin contact:**

Immediately rinse with water.

If skin irritation continues, consult a doctor.

**After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.**After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

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

Serious eye damage/eye irritation: Eye Irrit. 2

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

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents:**CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**5.2 Special hazards arising from the substance or mixture**Carbon dioxide (CO<sub>2</sub>)

Carbon monoxide (CO)

**5.3 Advice for firefighters****Protective equipment:**

Wear fully protective suit.

## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate

Wear self-contained respiratory protective device.

### SECTION 6: Accidental release measures

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

Use personal protective equipment.  
Ensure adequate ventilation.

**6.2 Environmental precautions** Do not allow to enter sewers/ surface or ground water.

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

Send for recovery or disposal in suitable receptacles.  
Retrieve the product by mechanical means.  
Dispose contaminated material as waste according to item 13.

#### 6.4 Reference to other sections

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Use only in well ventilated areas.  
Provide suction extractors if dust is formed.  
Do not inhale dust / smoke / mist.  
Avoid contact with the eyes and skin.

**Information about fire - and explosion protection:** No special measures required.

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

##### Requirements to be met by storerooms and receptacles:

Store in a cool, dry location in well sealed receptacles.  
Provide ventilation for receptacles.  
Store only in the original receptacle.

**Information about storage in one common storage facility:** Store away from oxidising agents.

**7.3 Specific end use(s):** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

**Ingredients with limit values that require monitoring at the workplace:** Not required.

##### PNECs

##### 77-92-9 Citric Acid Anhydrous

PNEC	0.44 mg/L (Water (Freshwater))
	0.044 mg/L (Water (Marine Water))
	>1000 mg/L (Sewage Treatment Plant (STP))
PNEC	3.46 mg/kg sedim. dw (Sediment (Marine Water))
	34.6 mg/kg sedim. dw (Sediment (Freshwater))
PNEC	33.1 mg/kg soil dw (Soil)

**Additional information:** The lists valid during the making were used as basis.

## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate

### 8.2 Exposure controls

#### Personal protective equipment

##### General protective and hygienic measures:

Do not inhale dust / smoke / mist.  
 Avoid contact with the eyes and skin.  
 Wash hands before breaks and at the end of work.  
 Do not eat, drink, smoke or sniff while working.

**Respiratory protection:** Suitable respiratory protective device recommended.

##### Protection of hands:



Protective gloves.

**Material of gloves:** Rubber, PVC or neoprene gloves recommended.

##### Eye protection:



Tightly sealed goggles (EN 166).

**Body protection:** Protective work clothing.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General Information

##### Appearance:

**Form:** Solid.  
 Crystalline  
**Colour:** White.

**Odour:** Odourless.

**Odour threshold:** Not determined.

**pH-value (100 g/l) :** 1.7

**Melting point/freezing point:** 153 °C

**Initial boiling point and boiling range:** Not determined.  
 Decomposes before boiling

**Flash point:** Not applicable.

**Flammability (solid, gas):** Product is not flammable.

**Ignition temperature:** Not applicable.

**Decomposition temperature:** Not determined.

**Explosive properties:** Product does not present an explosion hazard.

##### Explosion limits:

**Lower:** Not determined.

**Upper:** Not determined.

**Oxidising properties:** Not oxidising.

**Vapour pressure at 25 °C:** 2.21\*10<sup>-6</sup> Pa

## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate

<b>Density:</b>	Not determined.
<b>Relative density at 20 °C</b>	1.665
<b>Vapour density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Solubility in / Miscibility with Water at 20 °C:</b>	590 g/l
<b>Alcohols:</b>	Partly soluble.
<b>Partition coefficient: n-octanol/water:</b>	-0.2 - -1.8 log Pow
<b>Viscosity:</b>	
<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.

**9.2 Other information** No further relevant information available.

### SECTION 10: Stability and reactivity

**10.1 Reactivity** No data available.

#### 10.2 Chemical stability

**Thermal decomposition / conditions to be avoided:** Stable at environment temperature.

**10.3 Possibility of hazardous reactions** Reacts with alkali (lyes).

**10.4 Conditions to avoid** Keep away from heat and direct sunlight.

#### 10.5 Incompatible materials

Protect from moisture.

Avoid strong oxidants, strong alkalis and strong acids.

#### 10.6 Hazardous decomposition products

Carbon dioxide

Carbon monoxide

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

**Acute toxicity** Based on available data, the classification criteria are not met.

#### LD/LC50 values:

##### 77-92-9 Citric Acid Anhydrous

Oral	LD50	5400 mg/Kg bw (Mouse) (OECD 401)
Dermal	LD50	>2000 mg/Kg bw (Rat) (OECD 402)

#### Primary irritant effect:

**Skin corrosion/irritation:** Based on available data, the classification criteria are not met.

#### Serious eye damage/irritation:

Causes serious eye irritation.

**Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.

#### CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

**Carcinogenicity:** Based on available data, the classification criteria are not met.

**Reproductive toxicity:** Based on available data, the classification criteria are not met.

**STOT-single exposure:** Based on available data, the classification criteria are not met.

**STOT-repeated exposure:** Based on available data, the classification criteria are not met.

## Safety data sheet

according to 1907/2006/EC, Article 31

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate**Aspiration hazard:** Based on available data, the classification criteria are not met.**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:****77-92-9 Citric Acid Anhydrous**

LC50/48h	440 mg/L (Fish) (OECD 203)
NOEC	425 mg/L (Algae)
LC50/24h	1535 mg/L (Daphnia Magna)

**12.2 Persistence and degradability** Readily biodegradable.**12.3 Bioaccumulative potential** Does not accumulate in organisms.**12.4 Mobility in soil** pKa: 3.13, 4.76 and 6.4 at 25 °C**12.5 Results of PBT and vPvB assessment****PBT:** No PBT.**vPvB:** No vPvB.**12.6 Other adverse effects** No further relevant information available.**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation:** Do not allow product to reach sewage system.**Uncleaned packaging:****Recommendation:**

Disposal must be made according to official regulations.

Packaging that may not be cleansed must be disposed of in the same manner as the product.

**SECTION 14: Transport information****14.1 UN Number****ADR, ADN, IMDG, IATA** Not applicable.**14.2 UN proper shipping name****ADR, ADN, IMDG, IATA** Not applicable.**14.3 Transport hazard class(es)****ADR, ADN, IMDG, IATA**  
**Class** Not applicable.**14.4 Packing group****ADR, IMDG, IATA** Not applicable.**14.5 Environmental hazards****Marine pollutant:** No**14.6 Special precautions for user** Not applicable.**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

## Safety data sheet

*according to 1907/2006/EC, Article 31*

Revision: 15.06.2017

Version number 3

Superseded version: No 2/22.03.2014

**Trade name:** Citric Acid Monohydrate

### SECTION 15: Regulatory information

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

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**15.2 Chemical safety assessment** A Chemical Safety Assessment has been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

#### Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

**\* Data compared to the previous version altered.**

Classification and labelling according to Directive 67/548/EEC in section 2 has been removed.