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Total Enclosures: 2



## Safety Data Sheet

Version number: 10.0  
SDS# R1805

2021-07-15

### SECTION 1: Identification

#### 1.1 Product identifier

Trade name **R-1805, R-1805E, R-3902, K-3903 Ampoules**  
Other means of identification Carbohydrazide CHEMets® Refills, DEHA  
CHEMets® Refill & Vacu-vials® Ampoules

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

Component of water analysis test kits: K-1805, K-1805E, K-3902, K-3903

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

CHEMetrics, Inc.  
4295 Catlett Road  
Midland VA 22728  
United States

Telephone: 1-540-788-9026  
Telefax: 1-540-788-4856  
e-mail: technical@chemetrics.com  
Website: www.chemetrics.com

#### 1.4 Emergency telephone number

Emergency information service ChemTel Inc.: 1-800-255-3924, +01-813-248-0585

### SECTION 2: Hazard(s) identification

#### 2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.6	carcinogenicity	1A	Carc. 1A	H350
3.7	reproductive toxicity	2	Repr. 2	H361

For full text of abbreviations: see SECTION 16.

#### 2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

- Signal word danger

## - Pictograms

GHS07, GHS08



## - Hazard statements

H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H350 May cause cancer.  
 H361 Suspected of damaging fertility or the unborn child.

## - Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.  
 P280 Wear protective gloves.  
 P302+P352 IF ON SKIN: Wash with plenty of water.  
 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+P313 IF exposed or concerned: Get medical advice/ attention.  
 P321 Specific treatment (see on this label).  
 P332+P313 If skin irritation occurs: Get medical advice/attention.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P362+P364 Take off contaminated clothing and wash it before reuse.  
 P405 Store locked up.  
 P501 Dispose of contents/container to industrial combustion plant.

## SECTION 3: Composition/information on ingredients


### 3.1 Substances

Not relevant (mixture)

### 3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
water	CAS No 7732-18-5	≥ 83		
Acetic acid	CAS No 64-19-7	11	Skin Corr. 1A / H314 Eye Dam. 1 / H318 Flam. Liq. 3 / H226	
Ammonium acetate	CAS No 631-61-8	5		
Ethanol	CAS No 64-17-5	0.4	Carc. 1A / H350 Flam. Liq. 2 / H225	
3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine	CAS No 1046-56-6	≤ 0.1	Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Irrit. 2A / H319 STOT SE 3 / H335	

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
chloroform	CAS No 67-66-3	0.1	Acute Tox. 4 / H302 Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Carc. 2 / H351 Repr. 2 / H361d STOT RE 1 / H372	
FerroZine	CAS No 69898-45-9	≤ 0.1		

For full text of abbreviations: see SECTION 16.

## SECTION 4: First-aid measures

### 4.1 Description of first-aid measures

#### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

#### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

#### Following skin contact

Wash with plenty of soap and water.

#### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

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

Symptoms and effects are not known to date.

## SECTION 5: Fire-fighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

Water jet

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

#### Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

## SECTION 6: Accidental release measures

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

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Recommendations

**Wear impact- and splash-resistant eyewear. Break the ampoule tip only when it is completely immersed in sample. Breaking the tip in air may cause the glass ampoule to shatter.**

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

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

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

### 7.3 Other information

**For optimum analytical performance, store in the dark and at room temperature.**

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
US	ethanol	64-17-5	TLV®			1,000					ACGIH® 2021
US	ethyl alcohol	64-17-5	REL	1,000 (10 h)	1,900 (10 h)						NIOSH REL
US	ethyl alcohol (ethanol)	64-17-5	PEL (CA)	1,000	1,900						Cal/ OSHA PEL
US	ethyl alcohol (ethanol)	64-17-5	PEL	1,000	1,900						29 CFR 1910.1000
US	acetic acid	64-19-7	PEL (CA)	10	25	15	37	40			Cal/ OSHA PEL
US	acetic acid	64-19-7	REL	10 (10 h)	25 (10 h)	15	37				NIOSH REL
US	acetic acid	64-19-7	TLV®	10		15					ACGIH® 2021
US	acetic acid	64-19-7	PEL	10	25						29 CFR 1910.1000
US	chloroform	67-66-3	TLV®	10							ACGIH® 2021
US	chloroform	67-66-3	REL			2 (60 min)	9.78 (60 min)			appx-A	NIOSH REL
US	chloroform (trichloromethane)	67-66-3	PEL (CA)	2	9.78						Cal/ OSHA PEL
US	trichloromethane (chloroform)	67-66-3	PEL					50	240		29 CFR 1910.1000

**Notation**

appx-A NIOSH Potential Occupational Carcinogen (Appendix A)

Ceiling-C ceiling value is a limit value above which exposure should not occur

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Ammonium acetate	631-61-8	DNEL	911.6 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Ammonium acetate	631-61-8	DNEL	5,469 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
Ammonium acetate	631-61-8	DNEL	10.34 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Ammonium acetate	631-61-8	DNEL	62.04 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
chloroform	67-66-3	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
chloroform	67-66-3	DNEL	333 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
chloroform	67-66-3	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
chloroform	67-66-3	DNEL	0.94 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
Ammonium acetate	631-61-8	PNEC	3.08 mg/l	aquatic organisms	freshwater	short-term (single instance)
Ammonium acetate	631-61-8	PNEC	0.308 mg/l	aquatic organisms	marine water	short-term (single instance)
Ammonium acetate	631-61-8	PNEC	677 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Ammonium acetate	631-61-8	PNEC	2.51 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Ammonium acetate	631-61-8	PNEC	0.251 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Ammonium acetate	631-61-8	PNEC	0.72 mg/kg	terrestrial organisms	soil	short-term (single instance)
chloroform	67-66-3	PNEC	0.146 mg/l	aquatic organisms	freshwater	short-term (single instance)
chloroform	67-66-3	PNEC	0.015 mg/l	aquatic organisms	marine water	short-term (single instance)
chloroform	67-66-3	PNEC	0.048 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
chloroform	67-66-3	PNEC	0.45 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
chloroform	67-66-3	PNEC	0.09 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
chloroform	67-66-3	PNEC	0.56 mg/kg	terrestrial organisms	soil	short-term (single instance)

## 8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

**Product description** Vacu-vials Ampoules: Sealed glass ampoules, 13 mm OD, for instrumental colorimetric water analysis. Each Vacu-vial™ ampoule contains approximately 0.8 - 2 mL of liquid reagent sealed under vacuum. Test kits contain 30 ampoules.

CHEMets Refills: Sealed glass ampoules, 7 mm OD, for visual colorimetric water analysis. Each CHEMet™ ampoule contains approximately 0.2 - 0.5 mL of liquid reagent sealed under vacuum. Refills contain 30 ampoules, test kits contain 1 refill.

#### Appearance

Physical state	liquid
Color	colorless to pale pink
Particle	not relevant (liquid)
Odor	slight - characteristic

#### Other safety parameters



pH (value)	4.2
Melting point/freezing point	2 °C
Initial boiling point and boiling range	102 °C at 101.3 kPa
Flash point	>102 °C at 101.3 kPa
Evaporation rate	Not determined
Flammability (solid, gas)	not relevant, (fluid)

## Explosive limits

- Lower explosion limit (LEL)	4 vol%
- Upper explosion limit (UEL)	19.9 vol%
Vapor pressure	20.79 hPa at 25 °C
Density	not determined
Vapor density	this information is not available
Relative density	1 (water = 1)

## Solubility(ies)

- Water solubility	miscible in any proportion
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## Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	463 °C
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

**10.4 Conditions to avoid**

There are no specific conditions known which have to be avoided.

**10.5 Incompatible materials**

Oxidizers

**10.6 Hazardous decomposition products**

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

Test data are not available for the complete mixture.

**Classification procedure**

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

**Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)****Acute toxicity**

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine	1046-56-6	oral	500 mg/kg
chloroform	67-66-3	oral	908 mg/kg
chloroform	67-66-3	inhalation: vapor	3 mg/l/4h

**Skin corrosion/irritation**

Causes skin irritation.

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Respiratory or skin sensitization**

Shall not be classified as a respiratory or skin sensitizer.

**Germ cell mutagenicity**

Shall not be classified as germ cell mutagenic.

**Carcinogenicity**

May cause cancer.

## IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

Name of substance	CAS No	Classification	Number
Ethanol	64-17-5	1	
chloroform	67-66-3	2B	

## Legend

- 1 Carcinogenic to humans  
2B Possibly carcinogenic to humans

## National Toxicology Program (United States): Report on Carcinogens

Name of substance	CAS No	Classification	Number
chloroform	67-66-3	Reasonably anticipated to be a human carcinogen	2nd Report on Carcinogens

## Reproductive toxicity

Suspected of damaging the unborn child.

## Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

## Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

## Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## SECTION 12: Ecological information

**12.1 Toxicity**

Shall not be classified as hazardous to the aquatic environment.

**12.2 Persistence and degradability**

Data are not available.

**12.3 Bioaccumulative potential**

Data are not available.

**12.4 Mobility in soil**

Data are not available.

**12.5 Results of PBT and vPvB assessment**

Data are not available.

**12.6 Endocrine disrupting properties**

Information on this property is not available.

**12.7 Other adverse effects**

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

please consider the relevant national or regional provisions

## SECTION 14: Transport information

### 14.1 UN number

DOT UN 2790

IMDG-Code UN 2790

ICAO-TI UN 2790

### 14.2 UN proper shipping name

UN2790, Acetic acid solutions, 8, III

DOT Acetic acid solutions

IMDG-Code ACETIC ACID SOLUTION

ICAO-TI Acetic acid solution

### 14.3 Transport hazard class(es)

DOT 8

IMDG-Code 8

ICAO-TI 8

### 14.4 Packing group

DOT III

IMDG-Code III

ICAO-TI III

### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

### 14.6 Other relevant information

Shipping container markings and labels, received from CHEMetrics, may vary from the above information. Products that are regulated for transport will be packaged by CHEMetrics as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations. CHEMetrics may also elect to ship certain products as UN 3316 Chemical Kit, Hazard Class 9, Packing Group II or III. In case of reshipment, it is the responsibility of the shipper to determine appropriate labels and markings in accordance with applicable transportation regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

### Information for each of the UN Model Regulations

**Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information**

Reportable quantity (RQ) 10,000 lbs (4,540 kg) (chloroform) (Acetic acid)

Danger label(s) 8



Special provisions (SP) 148, IB3, T4, TP1

ERG No 153

**International Maritime Dangerous Goods Code (IMDG) - Additional information**

Marine pollutant -

Danger label(s) 8



Excepted quantities (EQ) E1

Limited quantities (LQ) 5 L

EmS F-A, S-B

Segregation group 1 - Acids

**International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information**

Danger label(s) 8



Excepted quantities (EQ) E1

Limited quantities (LQ) 1 L

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations specific for the product in question****National regulations (United States)****Toxic Substance Control Act (TSCA)** all ingredients are listed**Superfund Amendment and Reauthorization Act (SARA TITLE III )**

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

### The List of Extremely Hazardous Substances and Their Threshold Planning Quantities

Name of substance	CAS No	Notes	Reportable quantity (pounds)	Threshold planning quantity (pounds)
chloroform	67-66-3	f	10	10000

#### Legend

f Chemical on the original list that does not meet toxicity criteria but because of its acute lethality, high production volume and known risk is considered chemical of concern ("Other chemicals"). (November 17, 1986, and February 15, 1990.)

#### - Specific Toxic Chemical Listings (EPCRA Section 313)

#### Toxics Release Inventory: Specific Toxic Chemical Listings

Name of substance	CAS No	Remarks	Effective date
chloroform	67-66-3		1986-12-31

#### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

#### - List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	CAS No	Remarks	Statutory code	Final RQ pounds (Kg)
Acetic acid	64-19-7		1	5000 (2270)
Ammonium acetate	631-61-8		1	5000 (2270)
chloroform	67-66-3		1 2 3 4	10 (4,54)
chloroform				

#### Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act  
 2 "2" indicates that the source is section 307(a) of the Clean Water Act  
 3 "3" indicates that the source is section 112 of the Clean Air Act  
 4 "4" indicates that the source is section 3001 of the Resource Conservation and Recovery Act (RCRA)

#### Clean Air Act

Name of substance	CAS No	Type of registration	Basis for listing	Threshold quantity (lbs)
chloroform	67-66-3	Toxic substance	b	20000

#### Legend

b On EHS list, vapor pressure 10 mmHg or greater.

#### Right to Know Hazardous Substance List

## - Hazardous Substance List (NJ-RTK)

Name of substance	CAS No	Remarks	Classifications
Acetic acid	64-19-7		CO F2
Ethanol	64-17-5		CA MU TE F3
Ammonium acetate	631-61-8		
chloroform	67-66-3		CA

Legend

CA	Carcinogenic
CO	Corrosive
F2	Flammable - Second Degree
F3	Flammable - Third Degree
MU	Mutagenic
TE	Teratogenic

**California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987**

Proposition 65 List of chemicals			
Name acc. to inventory	CAS No	Remarks	Type of the toxicity
ethanol (ethyl alcohol)	64-17-5	in alcoholic beverages	developmental
chloroform	67-66-3		cancer
chloroform	67-66-3		developmental

**Industry or sector specific available guidance(s)****NPCA-HMIS® III**

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	*	chronic (long-term) health effects may result from repeated overexposure
Health	2	temporary or minor injury may occur
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	

**NFPA® 704**

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	0	material that will not burn under typical fire conditions
Health	2	material that, under emergency conditions, can cause temporary incapacitation or residual injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard		

### National inventories

Country	Inventory	Status
AU	AICS	not all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	not all ingredients are listed
KR	KECI	not all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.



## SECTION 16: Other information, including date of preparation or last revision

### Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H225	Highly flammable liquid and vapor.
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.



## Safety Data Sheet

Version number: 10.1  
SDS# S3900

2021-08-12

### SECTION 1: Identification

#### 1.1 Product identifier

Trade name **A-3900**  
Other means of identification Activator Solution for DEHA CHEMets® & Vacu-vials® Kits

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

Component of water analysis test kits: K-3902, K-3903

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

CHEMetrics, Inc.  
4295 Catlett Road  
Midland VA 22728  
United States

Telephone: 1-540-788-9026  
Telefax: 1-540-788-4856  
e-mail: technical@chemetrics.com  
Website: www.chemetrics.com

#### 1.4 Emergency telephone number

Emergency information service ChemTel Inc.: 1-800-255-3924, +01-813-248-0585

### SECTION 2: Hazard(s) identification

#### 2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.13	oxidizing liquid	3	Ox. Liq. 3	H272
3.1I	acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.2	skin corrosion/irritation	1	Skin Corr. 1	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16.

#### 2.2 Label elements

Labeling

- Signal word danger

## - Pictograms

GHS03, GHS05, GHS07



## - Hazard statements

H272 May intensify fire; oxidizer.  
 H314 Causes severe skin burns and eye damage.  
 H332 Harmful if inhaled.

## - Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P220 Keep/store away from clothing/combustible materials.  
 P260 Do not breathe dusts or mists.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear eye protection/face protection.  
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P310 Immediately call a POISON CENTER/doctor.  
 P321 Specific treatment (see on this label).  
 P363 Wash contaminated clothing before reuse.  
 P370+P378 In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.  
 P405 Store locked up.  
 P501 Dispose of contents/container to industrial combustion plant.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not relevant (mixture)

### 3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
water	CAS No 7732-18-5	81		
nitric acid	CAS No 7697-37-2	16	Acute Tox. 3 / H331 Skin Corr. 1A / H314 Ox. Liq. 2 / H272	
ferric nitrate	CAS No 7782-61-8 10421-48-4	3	Skin Corr. 1B / H314 Eye Dam. 1 / H318	

For full text of abbreviations: see SECTION 16.

## SECTION 4: First-aid measures

### 4.1 Description of first-aid measures

#### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

#### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

#### Following skin contact

Wash with plenty of soap and water.

#### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

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

Symptoms and effects are not known to date.

## SECTION 5: Fire-fighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

Water jet

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

#### Hazardous combustion products

Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

## SECTION 6: Accidental release measures

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

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Recommendations

**Wear Impact- and splash-resistant eyewear.**

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

- Handling of incompatible substances or mixtures

- Keep away from

Caustic solutions

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

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

- Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

### 7.3 Other information

**For optimum analytical performance, store in the dark and at room temperature.**

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
US	nitric acid	7697-37-2	PEL (CA)	2	5	4	10				Cal/ OSHA PEL
US	nitric acid	7697-37-2	REL	2 (10 h)	5 (10 h)	4	10				NIOSH REL
US	nitric acid	7697-37-2	TLV®	2		4					ACGIH® 2021
US	nitric acid	7697-37-2	PEL	2	5						29 CFR 1910.1000

Notation

Ceiling-C

ceiling value is a limit value above which exposure should not occur

STEL

short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA

time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
ferric nitrate	7782-61-8 10421-48-4	DNEL	12 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
ferric nitrate	7782-61-8 10421-48-4	DNEL	17 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
ferric nitrate	7782-61-8 10421-48-4	PNEC	0.024 mg/l	aquatic organisms	freshwater	short-term (single instance)
ferric nitrate	7782-61-8 10421-48-4	PNEC	0.002 mg/l	aquatic organisms	marine water	short-term (single instance)

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
ferric nitrate	7782-61-8 10421-48-4	PNEC	500 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
ferric nitrate	7782-61-8 10421-48-4	PNEC	0.2 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
ferric nitrate	7782-61-8 10421-48-4	PNEC	0.02 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
ferric nitrate	7782-61-8 10421-48-4	PNEC	0.026 mg/kg	terrestrial organisms	soil	short-term (single instance)

## 8.2 Exposure controls

### Appropriate engineering controls

General ventilation.

### Individual protection measures (personal protective equipment)

#### Eye/face protection

Wear eye/face protection.

#### Skin protection

##### - Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

##### - Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection.

#### Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

**Product description** Plastic bottle, contains approximately 9 mL of liquid reagent. Test kits contain one (1) bottle of solution. Activator Solution packs contain six (6) bottles of solution.

#### Appearance

Physical state	liquid
Color	colorless to gold
Particle	not relevant (liquid)
Odor	odorless

**Other safety parameters**

pH (value)	<2 (acid)
Melting point/freezing point	not determined
Initial boiling point and boiling range	95 °C
Flash point	not determined
Evaporation rate	Not determined
Flammability (solid, gas)	not relevant, (fluid)
Vapor pressure	not determined
Density	not determined
Vapor density	this information is not available
Relative density	1.08 (water = 1)

## Solubility(ies)

- Water solubility	miscible in any proportion
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## Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none



## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

Oxidizers

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Test data are not available for the complete mixture.

#### Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

#### Acute toxicity

Harmful if inhaled.

#### - Acute toxicity estimate (ATE)

Inhalation: vapor 16.56 mg<sub>l</sub>/4h

#### Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
nitric acid	7697-37-2	inhalation: vapor	>2.65 mg <sub>l</sub> /4h

#### Skin corrosion/irritation

Causes severe skin burns and eye damage.

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

**Germ cell mutagenicity**

Shall not be classified as germ cell mutagenic.

**Carcinogenicity**

Shall not be classified as carcinogenic.

**Reproductive toxicity**

Shall not be classified as a reproductive toxicant.

**Specific target organ toxicity - single exposure**

Shall not be classified as a specific target organ toxicant (single exposure).

**Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**Other information**

Corrosive to the respiratory tract.

**SECTION 12: Ecological information****12.1 Toxicity**

Shall not be classified as hazardous to the aquatic environment.

**12.2 Persistence and degradability**

Data are not available.

**12.3 Bioaccumulative potential**

Data are not available.

**12.4 Mobility in soil**

Data are not available.

**12.5 Results of PBT and vPvB assessment**

Data are not available.

**12.6 Endocrine disrupting properties**

Information on this property is not available.

**12.7 Other adverse effects**

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

please consider the relevant national or regional provisions

## SECTION 14: Transport information

### 14.1 UN number

DOT	UN 3264
IMDG-Code	UN 3264
ICAO-TI	UN 3264

### 14.2 UN proper shipping name

UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (contains: nitric acid, ferric nitrate), 8, II

DOT	Corrosive liquid, acidic, inorganic, n.o.s.
IMDG-Code	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
ICAO-TI	Corrosive liquid, acidic, inorganic, n.o.s.
Technical name (hazardous ingredients)	nitric acid, ferric nitrate

### 14.3 Transport hazard class(es)

DOT	8
IMDG-Code	8
ICAO-TI	8

### 14.4 Packing group

DOT	II
IMDG-Code	II
ICAO-TI	II

### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations


### 14.6 Other relevant information

Shipping container markings and labels, received from CHEMetrics, may vary from the above information. Products that are regulated for transport will be packaged by CHEMetrics as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations. CHEMetrics may also elect to ship certain products as UN 3316 Chemical Kit, Hazard Class 9, Packing Group II or III. In case of reshipping, it is the responsibility of the shipper to determine appropriate labels and markings in accordance with applicable transportation regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.


**Information for each of the UN Model Regulations****Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information**

Reportable quantity (RQ)	6,250 lbs (2,838 kg) (nitric acid) (ferric nitrate)
Danger label(s)	8
	
Special provisions (SP)	386, B2, IB2, T11, TP2, TP27
ERG No	154

**International Maritime Dangerous Goods Code (IMDG) - Additional information**

Marine pollutant	-
Danger label(s)	8
	
Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-A, S-B
Segregation group	1 - Acids

**International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information**

Danger label(s)	8
	
Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations specific for the product in question****National regulations (United States)**

**Toxic Substance Control Act (TSCA)** all ingredients are listed

### Superfund Amendment and Reauthorization Act (SARA TITLE III )

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities				
Name of substance	CAS No	Notes	Reportable quantity (pounds)	Threshold planning quantity (pounds)
nitric acid	7697-37-2		1,000	1000

- Specific Toxic Chemical Listings (EPCRA Section 313)

Toxics Release Inventory: Specific Toxic Chemical Listings			
Name of substance	CAS No	Remarks	Effective date
nitric acid	7697-37-2		1986-12-31

### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	CAS No	Remarks	Statutory code	Final RQ pounds (Kg)
nitric acid	7697-37-2		1	1000 (454)
ferric nitrate	10421-48-4		1	1000 (454)

Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act

### Clean Air Act

Name of substance	CAS No	Type of registration	Basis for listing	Threshold quantity (lbs)
nitric acid	7697-37-2	Toxic substance	b	15000

Legend

b On EHS list, vapor pressure 10 mmHg or greater.

### Right to Know Hazardous Substance List

- Hazardous Substance List (NJ-RTK)

Name of substance	CAS No	Remarks	Classifications
nitric acid	7697-37-2		CO R2
ferric nitrate	10421-48-4		

Legend

CO Corrosive  
R2 Reactive - Second Degree

## California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

### Industry or sector specific available guidance(s)

#### NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	/	none
Health	3	major injury likely unless prompt action is taken and medical treatment is given
Flammability	1	material that must be preheated before ignition can occur
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	

#### NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	1	material that must be preheated before ignition can occur
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard		

### National inventories

Country	Inventory	Status
AU	AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed

Country	Inventory	Status
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information, including date of preparation or last revision

### Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H272	May intensify fire; oxidizer.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H332	Harmful if inhaled.

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.