



Simplicity in Water Analysis

Cover Page for Safety Data Sheet

Thank you for choosing CHEMetrics, Inc. We appreciate your business. In order to best serve your needs for accurate and complete Safety Data, we offer the following information as supplemental to the attached SDS.

SDS No.: K1910

Version No.: 1.4

Product Name: Carbon Dioxide Titrets® Ampoules

Part Nos.: K-1910 Ampoules, K-1920 Ampoules, K-1925 Ampoules

Product Descriptions:

Titrets Ampoules: Glass ampoules, 13 mm OD, for titrimetric water analysis. Each Titret™ ampoule contains approximately 1.1 mL of liquid reagent sealed under vacuum. Test kits contain 30 ampoules.

Addendum to Section 14 Transport Information:

Shipping container markings and labels for this product, as received, may vary from the contents of section 14 of the SDS for one or both of the following reasons:

- CHEMetrics has packaged this product as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations.
- CHEMetrics has packaged this product as part of a test kit or reagent set composed of various chemical reagents and elected to ship 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.

Additional Information:

- "Print Date" = Revision Date (expressed as DD/MM/YYYY)
- Test kits and reagents sets may contain additional chemical reagents. See separate SDS(s).

CHEMetrics®, VACUettes®, Vacu-vials®, and Titrets® are registered trademarks of CHEMetrics Inc.



Carbon Dioxide Titrets Ampoules

CHEMetrics, Inc.

Chemwatch: 9-82597

SDS No: K1910

Version No: 1.4

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 12/10/2014

Print Date: 12/03/2015

Initial Date: 15/10/2014

S.GHS.USA.EN

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

Product Identifier

Product name	Carbon Dioxide Titrets Ampoules
Synonyms	Part Nos.: K-1910 Ampoules, K-1920 Ampoules, K-1925 Ampoules
Proper shipping name	Not Applicable
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

Relevant identified uses	Component of water analysis test kit K-1910, K-1920, K-1925
--------------------------	---

Details of the manufacturer/importer

Registered company name	CHEMetrics, Inc.
Address	4295 Catlett Road, Midland, VA. 22728 United States
Telephone	1-540-788-9026
Fax	1-540-788-4856
Website	www.chemetrics.com
Email	technical@chemetrics.com

Emergency telephone number

Association / Organisation	ChemTel Inc.
Emergency telephone numbers	1-800-255-3924
Other emergency telephone numbers	+01-813-248-0585

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification	Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, STOT - SE (Resp. Irr.) Category 3
--------------------	---

Label elements

GHS label elements	
--------------------	--

SIGNAL WORD **DANGER**

Hazard statement(s)

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation

Precautionary statement(s) Prevention

P101	If medical advice is needed, have product container or label at hand.
------	---

Continued...

Carbon Dioxide Titrets Ampoules

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

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/shower.
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/physician/first aider
P363	Wash contaminated clothing before reuse.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
------	--

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7732-18-5	>99	water
1310-73-2	<1	sodium hydroxide
10102-17-7	<0.1	sodium thiosulfate pentahydrate

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Transport to hospital or doctor without delay.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

	<ul style="list-style-type: none"> ▶ There is no restriction on the type of extinguisher which may be used. ▶ Use extinguishing media suitable for surrounding area.
--	--

Carbon Dioxide Titrets Ampoules

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
----------------------	-------------

Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area. ▶ DO NOT approach containers suspected to be hot.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. <p>May emit poisonous fumes May emit corrosive fumes.</p>

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Contain and absorb spill with sand, earth, inert material or vermiculite. ▶ Wipe up.
Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water course.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. <p>Wear impact- and splash-resistant eyewear. Breaking the ampoule tip in air when a valve assembly is not attached may cause the glass ampoule to shatter.</p>
Other information	For optimum analytical performance, store in the dark and at room temperature.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	None known

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	sodium hydroxide	Sodium hydroxide	2 mg/m3	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	sodium hydroxide	Sodium hydroxide	Not Available	Not Available	2 mg/m3	TLV® Basis: URT, eye, & skin irr
US NIOSH Recommended Exposure Limits (RELs)	sodium hydroxide	Caustic soda, Lye, Soda lye, Sodium hydrate	Not Available	Not Available	2 mg/m3	Not Available

EMERGENCY LIMITS


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sodium hydroxide	Sodium hydroxide	Not Available	Not Available	Not Available
sodium thiosulfate pentahydrate	Sodium thiosulfate pentahydrate	0.85 mg/m3	9.4 mg/m3	1200 mg/m3
sodium thiosulfate pentahydrate	Sodium thiosulfate	3 mg/m3	33 mg/m3	1100 mg/m3

Continued...

Carbon Dioxide Titrets Ampoules

Ingredient	Original IDLH	Revised IDLH
water	Not Available	Not Available
sodium hydroxide	250 mg/m3	10 mg/m3
sodium thiosulfate pentahydrate	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.</p>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Chemical goggles. ▶ Full face shield may be required for supplementary but never for primary protection of eyes. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber ▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream. ▶ Skin cleansing cream.
Thermal hazards	Not Available

Recommended material(s)

Respiratory protection

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Carbon Dioxide Titrets Ampoules

Carbon Dioxide Titrets Ampoules

Material	CPI
BUTYL	A
NEOPRENE	A
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
SARANEX-23	C
SARANEX-23 2-PLY	C
TEFLON	C
VITON	C
VITON/CHLOROBUTYL	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final

Continued...

Carbon Dioxide Titrets Ampoules

selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colorless		
Physical state	Liquid	Relative density (Water = 1)	1.0
Odour	Odourless	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	11-12	Decomposition temperature	Not Available
Melting point / freezing point (°C)	0	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	100	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Not normally a hazard due to non-volatile nature of product The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence.
Ingestion	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
Chronic	Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Carbon Dioxide Titrets Ampoules	TOXICITY	IRRITATION
Carbon Dioxide Titrets Ampoules	TOXICITY	IRRITATION

Carbon Dioxide Titrets Ampoules

WATER	No significant acute toxicological data identified in literature search.
SODIUM HYDROXIDE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration. Asthma-like symptoms may continue for months or even years after exposure to the material ceases.
Carbon Dioxide Titrets Ampoules, SODIUM THIOSULFATE PENTAHYDRATE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance.

Acute Toxicity	☹	Carcinogenicity	☹
Skin Irritation/Corrosion	✔	Reproductivity	☹
Serious Eye Damage/Irritation	✔	STOT - Single Exposure	✔
Respiratory or Skin sensitisation	☹	STOT - Repeated Exposure	☹
Mutagenicity	☹	Aspiration Hazard	☹

Legend: ✔ – Data required to make classification available
 ✘ – Data available but does not fill the criteria for classification
 ☹ – Data Not Available to make classification

CMR STATUS

EYE	sodium hydroxide	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS) - Eye	X SODIUM HYDROXIDE
RESPIRATORY	sodium hydroxide	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS) - Respiratory	X
SKIN	sodium hydroxide	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS) - Skin	X

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
water	LOW	LOW
sodium hydroxide	LOW	LOW
sodium thiosulfate pentahydrate	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
water	LOW (LogKOW = -1.38)
sodium hydroxide	LOW (LogKOW = -3.8796)
sodium thiosulfate pentahydrate	LOW (LogKOW = -1.529)

Mobility in soil

Ingredient	Mobility
water	LOW (KOC = 14.3)
sodium hydroxide	LOW (KOC = 14.3)
sodium thiosulfate pentahydrate	LOW (KOC = 6.124)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	Dispose of according to federal, state, and local regulations.
-------------------------------------	--

Carbon Dioxide Titrets Ampoules

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
------------------	----

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

SECTION 15 REGULATORY INFORMATION

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

water(7732-18-5) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
sodium hydroxide(1310-73-2) is found on the following regulatory lists	"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure Limits for Air Contaminants", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)", "US NIOSH Recommended Exposure Limits (RELs)", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Minnesota Permissible Exposure Limits (PELs)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"
sodium thiosulfate pentahydrate(10102-17-7) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
Not Available	Not Available

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.



Simplicity in Water Analysis

Cover Page for Safety Data Sheet

Thank you for choosing CHEMetrics, Inc. We appreciate your business. In order to best serve your needs for accurate and complete Safety Data, we offer the following information as supplemental to the attached SDS.

SDS No.: S1900

Version No.: 1.1

Product Name: Activator Solution for Carbon Dioxide Titrets® Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets® Kits

Part Nos.: A-1900, A-4302, A-4700

Product Descriptions:

Activator, Indicator Solution: Plastic bottle, contains approximately 9 mL of liquid reagent. Test kits contain one (1) bottle of solution.

Addendum to Section 14 Transport Information:

Shipping container markings and labels for this product, as received, may vary from the contents of section 14 of the SDS for one or both of the following reasons:

- CHEMetrics has packaged this product as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations.
- CHEMetrics has packaged this product as part of a test kit or reagent set composed of various chemical reagents and elected to ship 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.

Additional Information:

- “Print Date” = Revision Date (expressed as DD/MM/YYYY)
- Test kits and reagents sets may contain additional chemical reagents. See separate SDS(s).

CHEMetrics®, VACUettes®, Vacu-vials®, and Titrets® are registered trademarks of CHEMetrics Inc.



Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

CHEMetrics, Inc.

Chemwatch Hazard Alert Code: 3

Chemwatch: 9-76804

SDS No: S1900

Version No: 1.1

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 05/09/2014

Print Date: 12/03/2015

Initial Date: 06/09/2014

S.GHS.U.S.A.EN

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

Product Identifier

Product name	Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits
Synonyms	Part Nos.: A-1900, A-4302, A-4700
Proper shipping name	Chemical kits First aid kits
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

Relevant identified uses	Component of water analysis test kits K-1910, K-1920, K-1925, K-4302, K-4710
--------------------------	--

Details of the manufacturer/importer

Registered company name	CHEMetrics, Inc.
Address	4295 Catlett Road, Midland, VA. 22728 United States
Telephone	1-540-788-9026
Fax	1-540-788-4856
Website	www.chemetrics.com
Email	technical@chemetrics.com

Emergency telephone number

Association / Organisation	ChemTel Inc.
Emergency telephone numbers	1-800-255-3924
Other emergency telephone numbers	+01-813-248-0585

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification	Flammable Liquid Category 2, Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4, Germ Cell Mutagen Category 2, Carcinogen Category 1B, STOT - SE Category 2
--------------------	---

Label elements

GHS label elements	
--------------------	--

SIGNAL WORD	DANGER
-------------	--------

Hazard statement(s)

H225	Highly flammable liquid and vapour
H302	Harmful if swallowed
H312	Harmful in contact with skin
H332	Harmful if inhaled

Continued...

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

H341	Suspected of causing genetic defects
H350	May cause cancer
H371	May cause damage to organs

Precautionary statement(s) Prevention

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.

Precautionary statement(s) Response

P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog for extinction.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor/physician/first aider
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water and soap
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
------	--

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
77-09-8	2	phenolphthalein
67-56-1	3	methanol
64-17-5	55	ethanol
7732-18-5	40	water

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none"> ▶ IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. ▶ For advice, contact a Poisons Information Centre or a doctor. ▶ Urgent hospital treatment is likely to be needed. ▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist. ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS. <p>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</p>

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

- ▶ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short term repeated exposures to ethanol:

- ▶ Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- ▶ Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- ▶ Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).
- ▶ Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- ▶ Fructose administration is contra-indicated due to side effects.

For acute and short term repeated exposures to methanol:

- ▶ Toxicity results from accumulation of formaldehyde/formic acid.
- ▶ Clinical signs are usually limited to CNS, eyes and GI tract. Severe metabolic acidosis may produce dyspnea and profound systemic effects which may become intractable. All symptomatic patients should have arterial pH measured. Evaluate airway, breathing and circulation.
- ▶ Stabilise obtunded patients by giving naloxone, glucose and thiamine.
- ▶ Decontaminate with Ipecac or lavage for patients presenting 2 hours post-ingestion. Charcoal does not absorb well; the usefulness of cathartic is not established.
- ▶ Forced diuresis is not effective; haemodialysis is recommended where peak methanol levels exceed 50 mg/dL (this correlates with serum bicarbonate levels below 18 mEq/L).
- ▶ Ethanol, maintained at levels between 100 and 150 mg/dL, inhibits formation of toxic metabolites and may be indicated when peak methanol levels exceed 20 mg/dL. An intravenous solution of ethanol in D5W is optimal.
- ▶ Folate, as leucovorin, may increase the oxidative removal of formic acid. 4-methylpyrazole may be an effective adjunct in the treatment. 8-Phenytoin may be preferable to diazepam for controlling seizure.

[Ellenhorn Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

Determinant	Index	Sampling Time	Comment
1. Methanol in urine	15 mg/l	End of shift	B, NS
2. Formic acid in urine	80 mg/gm creatinine	Before the shift at end of workweek	B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed.

NS: Non-specific determinant - observed following exposure to other materials.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas. Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- ▶ foam.
- ▶ dry chemical powder.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
-----------------------------	-------------

Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use water delivered as a fine spray to control fire and cool adjacent area. ▶ Avoid spraying water onto liquid pools.
Fire/Explosion Hazard	<p>WARNING: In use may form flammable/ explosive vapour-air mixtures.</p> <ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO).

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Contain and absorb spill with sand, earth, inert material or vermiculite. ▶ Wipe up.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by all means available, spillage from entering drains or water courses. ▶ Consider evacuation (or protect in place).

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. <p>Wear impact- and splash-resistant eyewear.</p>
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry, well-ventilated area. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. <p>For optimum analytical performance, store in the dark and at room temperature.</p>

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates. ▶ Avoid strong bases. <p>*</p>

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Levels (PELs) - Table Z1	methanol	Methyl alcohol	260 mg/m ³ / 200 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	methanol	Methanol	200 ppm	250 ppm	Not Available	TLV® Basis: Headache; eye dam; dizziness; nausea; BEI
US NIOSH Recommended Exposure Limits (RELs)	methanol	Carbinol, Columbian spirits, Methanol, Pyroligneous spirit, Wood alcohol, Wood naphtha, Wood spirit	260 mg/m ³ / 200 ppm	325 mg/m ³ / 250 ppm	Not Available	[skin]
US OSHA Permissible Exposure Levels (PELs) - Table Z1	ethanol	Ethyl alcohol (Ethanol)	1900 mg/m ³ / 1000 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	ethanol	Ethanol	Not Available	1000 ppm	Not Available	TLV® Basis: URT irr
US NIOSH Recommended Exposure Limits (RELs)	ethanol	Alcohol, Cologne spirit, Ethanol, EtOH, Grain alcohol	1900 mg/m ³ / 1000 ppm	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
phenolphthalein	Phenolphthalein	0.58 mg/m ³	6.3 mg/m ³	200 mg/m ³
methanol	Methyl alcohol; (Methanol)	Not Available	Not Available	Not Available
ethanol	Ethyl alcohol; (Ethanol)	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
phenolphthalein	Not Available	Not Available
methanol	25,000 ppm	6,000 ppm
ethanol	15,000 ppm	3,300 [LEL] ppm
water	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.</p>
---	--

Continued...

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Suitability and durability of glove type is dependent on usage.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ▶ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] ▶ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. ▶ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Material	CPI
NEOPRENE	B
BUTYL	C
BUTYL/NEOPRENE	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE/EVAL/PE	C
PVA	C
PVC	C
PVDC/PE/PVDC	C
SARANEX-23 2-PLY	C
SARANEX-23	C
TEFLON	C
VITON	C
VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	AX-AUS / Class1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+			Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colorless		
Physical state	Liquid	Relative density (Water = 1)	0.88
Odour	Characteristic	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	6.5	Decomposition temperature	Not Available
Melting point / freezing point (°C)	-68	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	88	Molecular weight (g/mol)	Not Available
Flash point (°C)	14	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	19	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	4.3	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Animal testing shows that the most common signs of inhalation overdose is inco-ordination and drowsiness. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p>							
Ingestion	<p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Ingestion of ethanol (ethyl alcohol, "alcohol") may produce nausea, vomiting, bleeding from the digestive tract, abdominal pain, and diarrhoea. Effects on the body:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Blood concentration</th> <th>Effects</th> </tr> </thead> <tbody> <tr> <td><1.5 g/L</td> <td>Mild: impaired vision, co-ordination and reaction time; emotional instability</td> </tr> <tr> <td>1.5-3.0 g/L</td> <td>Moderate: Slurred speech, confusion, inco-ordination, emotional instability, disturbances in perception and senses, possible blackouts, and impaired objective performance in standardized tests. Possible double vision, flushing, fast heart rate, sweating and incontinence. Slow breathing may occur rarely and fast breathing may develop in cases of metabolic acidosis, low blood sugar and low blood potassium.</td> </tr> </tbody> </table>		Blood concentration	Effects	<1.5 g/L	Mild: impaired vision, co-ordination and reaction time; emotional instability	1.5-3.0 g/L	Moderate: Slurred speech, confusion, inco-ordination, emotional instability, disturbances in perception and senses, possible blackouts, and impaired objective performance in standardized tests. Possible double vision, flushing, fast heart rate, sweating and incontinence. Slow breathing may occur rarely and fast breathing may develop in cases of metabolic acidosis, low blood sugar and low blood potassium.
Blood concentration	Effects							
<1.5 g/L	Mild: impaired vision, co-ordination and reaction time; emotional instability							
1.5-3.0 g/L	Moderate: Slurred speech, confusion, inco-ordination, emotional instability, disturbances in perception and senses, possible blackouts, and impaired objective performance in standardized tests. Possible double vision, flushing, fast heart rate, sweating and incontinence. Slow breathing may occur rarely and fast breathing may develop in cases of metabolic acidosis, low blood sugar and low blood potassium.							

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Skin Contact	<p>Skin contact with the material may be harmful; systemic effects may result following absorption. The material is not thought to be a skin irritant (as classified by EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	<p>Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).</p> <p>Direct contact of the eye with ethanol (alcohol) may cause an immediate stinging and burning sensation, with reflex closure of the lid, and a temporary, tearing injury to the cornea together with redness of the conjunctiva. Discomfort may last 2 days but usually the injury heals without treatment.</p>
Chronic	<p>Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure.</p> <p>There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.</p> <p>Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation.</p> <p>Prolonged exposure to ethanol may cause damage to the liver and cause scarring. It may also worsen damage caused by other agents.</p>

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits	TOXICITY	IRRITATION
	TOXICITY	IRRITATION

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits	<p>No significant acute toxicological data identified in literature search.</p> <p>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p>
PHENOLPHTHALEIN	<p>For phenolphthalein</p> <p>Phenolphthalein is absorbed in the small bowel and is conjugated in the liver and eliminated in the bile. As it passes through the small intestine, it is partially deconjugated and reabsorbed. Phenolphthalein and its metabolite may enhance oxygen radical production and cause oxidative damage. Repeated oral intake may induce abnormal red blood cells, abnormal sperm cell production, malignant lymphomas, chromosomal aberrations and gene mutations.</p> <p>The main target organ for the toxic effects of phenolphthalein is reported to be the intestine.</p> <p>Oral (rat) TDLo: 324000 mg/kg/13W-C</p>
WATER	<p>No significant acute toxicological data identified in literature search.</p>
METHANOL, ETHANOL	<p>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p>

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	⊗	Reproductivity	⊗
Serious Eye Damage/Irritation	⊗	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	⊗	STOT - Repeated Exposure	⊗
Mutagenicity	✓	Aspiration Hazard	⊗

Legend: ✓ – Data required to make classification available
 ✗ – Data available but does not fill the criteria for classification
 ⊗ – Data Not Available to make classification

CMR STATUS

CARCINOGEN	phenolphthalein	US Environmental Defense Scorecard Recognized Carcinogens	P65
	ethanol	US Environmental Defense Scorecard Suspected Carcinogens	IARC HAZMAP, NTP-C
SKIN	methanol	US - Hawaii Air Contaminant Limits - Skin Designation US - Alaska Limits for Air Contaminants - Skin Designation US NIOSH Recommended Exposure Limits (RELs) - Skin US - Washington Permissible exposure limits of air contaminants - Skin US - Michigan Exposure Limits for Air Contaminants - Skin US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin US ACGIH Threshold Limit Values (TLV) - Skin US - California Permissible Exposure Limits for Chemical Contaminants - Skin US - North Carolina Permissible Exposure Limits (PELs) for Air Contaminants - Skin Designation [NLV] US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin US - Minnesota Permissible Exposure Limits (PELs) - Skin	X [skin]]Yes S

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

For Ethanol:
 log Kow: -0.31 to -0.32;
 Koc 1: Estimated BCF= 3;
 Half-life (hr) air: 144;

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Half-life (hr) H₂O surface water: 144;
 Henry's atm m³/mol: 6.29E-06;
 BOD 5 if unstated: 0.93-1.67,63%
 COD: 1.99-2.11,97%;
 ThOD : 2.1.

Environmental Fate: Terrestrial - Ethanol quickly biodegrades in soil but may leach into ground water; most is lost by evaporation. Ethanol is expected to have very high mobility in soil. Volatilization of ethanol from moist soil surfaces is expected to be an important fate process. The potential for volatilization of ethanol from dry soil surfaces may exist.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
phenolphthalein	HIGH	HIGH
methanol	LOW	LOW
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
phenolphthalein	LOW (LogKOW = 3.0584)
methanol	LOW (BCF = 10)
ethanol	LOW (LogKOW = -0.31)
water	LOW (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility
phenolphthalein	LOW (KOC = 307100)
methanol	HIGH (KOC = 1)
ethanol	HIGH (KOC = 1)
water	LOW (KOC = 14.3)


SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	Dispose of according to federal, state, and local regulations.
------------------------------	--

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO

Land transport (DOT)

UN number	3316
Packing group	II
UN proper shipping name	Chemical kits; First aid kits
Environmental hazard	No relevant data
Transport hazard class(es)	Class : 9
Special precautions for user	Special provisions : 15

Air transport (ICAO-IATA / DGR)

UN number	3316						
Packing group	II						
UN proper shipping name	Chemical kit †; First aid kit †						
Environmental hazard	No relevant data						
Transport hazard class(es)	<table border="0"> <tr> <td>ICAO/IATA Class</td> <td>: 9</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>: Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>: 9L</td> </tr> </table>	ICAO/IATA Class	: 9	ICAO / IATA Subrisk	: Not Applicable	ERG Code	: 9L
ICAO/IATA Class	: 9						
ICAO / IATA Subrisk	: Not Applicable						
ERG Code	: 9L						

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

Special precautions for user	Special provisions	A44 A163
	Cargo Only Packing Instructions	960
	Cargo Only Maximum Qty / Pack	10 kg
	Passenger and Cargo Packing Instructions	960
	Passenger and Cargo Maximum Qty / Pack	10 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y960
	Passenger and Cargo Limited Maximum Qty / Pack	1 kg

Sea transport (IMDG-Code / GGVSee)

UN number	3316	
Packing group	II	
UN proper shipping name	CHEMICAL KIT or FIRST AID KIT	
Environmental hazard	Not Applicable	
Transport hazard class(es)	IMDG Class	9
	IMDG Subrisk	Not Applicable
Special precautions for user	EMS Number	F-A , S-P
	Special provisions	251 340
	Limited Quantities	See SP251

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	methanol	Y

SECTION 15 REGULATORY INFORMATION

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

phenolphthalein(77-09-8) is found on the following regulatory lists	"US National Toxicology Program (NTP) 13th Report Part B. Reasonably Anticipated to be a Human Carcinogen", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "US - California Proposition 65 - Carcinogens", "US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
methanol(67-56-1) is found on the following regulatory lists	"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Idaho - Limits for Air Contaminants", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Proposition 65 - Reproductive Toxicity", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure Limits for Air Contaminants", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS)", "US NIOSH Recommended Exposure Limits (RELS)", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "US - Minnesota Permissible Exposure Limits (PELs)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELS)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"
ethanol(64-17-5) is found on the following regulatory lists	"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure Limits for Air Contaminants", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Mutagens", "US NIOSH Recommended Exposure Limits (RELS)", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "US - Minnesota Permissible Exposure Limits (PELs)", "US ACGIH Threshold Limit Values (TLV)", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"
water(7732-18-5) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

SECTION 16 OTHER INFORMATION

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any

Continued...

Activator Solution for Carbon Dioxide Titrets Kits, Indicator Solution for Hydrate Alkalinity & Glutaraldehyde Titrets Kits

process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.