



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.: R1001

Version No.: 2.2

Product Name: CHEMetrics® Ampoules for Filming Amines CHEMetrics® Kit & Refill (R-1001) and for Detergents CHEMetrics® Kit & Refill (R-9401)

Component of water analysis reagent sets: Refills R-1000, R-1000E, R-9400, R-9404 and Test Kits K-1001, K-1001E, K-9400, K-9404

Product Descriptions:

CHEMetrics Ampoules: Sealed glass ampoules, 7 mm OD, for visual colorimetric water analysis. Each CHEMet™ ampoule contains approximately 0.25 mL of liquid reagent sealed under vacuum. The refills and kits contain 20 CHEMetrics 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).

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CHEMetrics Ampoules for Filming Amines CHEMetrics Kit & Refill (R-1001) and for Detergents CHEMetrics Kit & Refill (R-9401)

CHEMetrics, Inc.

Chemwatch Hazard Alert Code: 3

Chemwatch: 9-92655
SDS No: R1001
Version No: 2.2
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 03/11/2014
Print Date: 12/03/2015
Initial Date: 05/11/2014
S.GHS.USA.EN

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

Product Identifier

Product name	CHEMetrics Ampoules for Filming Amines CHEMetrics Kit & Refill (R-1001) and for Detergents CHEMetrics Kit & Refill (R-9401)
Synonyms	Not Available
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 reagent sets: refills R-1000, R-1000E, R-9400, R-9404 and test kits K-1001, K-1001E, K-9400, K-9404
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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 3, Serious Eye Damage Category 1, STOT - SE (Narcosis) Category 3
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Label elements

GHS label elements	
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SIGNAL WORD **DANGER**

Hazard statement(s)

H226	Flammable liquid and vapour
H318	Causes serious eye damage
H336	May cause drowsiness or dizziness

Precautionary statement(s) Prevention

Continued...

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

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.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P240	Ground/bond container and receiving equipment.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician/first aider
P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog for extinction.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
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
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
71-23-8	98	n-propanol
7732-18-5	2	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"> ▶ 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"> ▶ 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, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ Immediately give a glass of water. ▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

To treat poisoning by the higher aliphatic alcohols (up to C7):

- ▶ Gastric lavage with copious amounts of water.
- ▶ It may be beneficial to instill 60 ml of mineral oil into the stomach.
- ▶ Oxygen and artificial respiration as needed.
- ▶ Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- ▶ To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- ▶ Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5]

BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- ▶ Monitor and treat, where necessary, for shock.
- ▶ Monitor and treat, where necessary, for pulmonary oedema.
- ▶ Anticipate and treat, where necessary, for seizures.

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CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

- ▶ **DO NOT use emetics.** Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- ▶ Give activated charcoal.

ADVANCED TREATMENT

- ▶ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- ▶ Monitor and treat, where necessary, for arrhythmias.
- ▶ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- ▶ If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50 mg), give 50% dextrose.
- ▶ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- ▶ Drug therapy should be considered for pulmonary oedema.
- ▶ Treat seizures with diazepam.
- ▶ Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT

- ▶ Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- ▶ Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- ▶ Acidosis may respond to hyperventilation and bicarbonate therapy.
- ▶ Haemodialysis might be considered in patients with severe intoxication.
- ▶ Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

For C8 alcohols and above.

Symptomatic and supportive therapy is advised in managing patients.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ Alcohol stable foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

Special hazards arising from the substrate or mixture

- | | |
|-----------------------------|--|
| Fire Incompatibility | ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

Advice for firefighters

Fire Fighting

- ▶ 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

- ▶ 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).
- ▶ May emit acid smoke.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills

- ▶ Remove all ignition sources.
- ▶ 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 small quantities with vermiculite or other absorbent material.

Major Spills

- Moderate hazard.
- ▶ 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

- ▶ **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.**

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

	<p>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.</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	<p>Alcohols</p> <ul style="list-style-type: none"> ▶ are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents. ▶ reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen ▶ react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium ▶ should not be heated above 49 deg. C. when in contact with aluminium equipment

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	n-propanol	n-Propyl alcohol	500 mg/m ³ / 200 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	n-propanol	n-Propanol (n-Propyl alcohol)	100 ppm	Not Available	Not Available	TLV® Basis: Eye & URT irr
US NIOSH Recommended Exposure Limits (RELs)	n-propanol	Ethyl carbinol, 1-Propanol, n-Propanol, Propyl alcohol	500 mg/m ³ / 200 ppm	625 mg/m ³ / 250 ppm	Not Available	[skin]

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
n-propanol	Propyl alcohol, n-; (n-Propanol)	250 ppm	250 ppm	4000 ppm

Ingredient	Original IDLH	Revised IDLH
n-propanol	4,000 ppm	800 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>
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.
Skin protection	See Hand protection below
Hands/feet protection	<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. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> ▶ frequency and duration of contact, ▶ chemical resistance of glove material, ▶ glove thickness and ▶ dexterity

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CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

	Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
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)

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:

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

Material	CPI
NEOPRENE	A
VITON	B
BUTYL	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PVA	C
PVC	C
TEFLON	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 A Filter of sufficient capacity, (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	Air-line*	A-2	A-PAPR-2 ^
up to 20 x ES	-	A-3	-
20+ x ES	-	Air-line**	-

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

^ - Full-face

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)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	colorless, may contain black particles		
Physical state	Liquid	Relative density (Water = 1)	0.8
Odour	Characteristic	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	413
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	-127	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	97	Molecular weight (g/mol)	Not Available
Flash point (°C)	23	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Flammable.	Oxidising properties	Not Available
Upper Explosive Limit (%)	13.5	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	2.1	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution	8.5
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
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CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

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 is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Subjects unacclimatised to n-propanol exposure experienced mild irritation of the eyes, nose and throat at a concentration of 400 parts per million.
Ingestion	Overexposure to non-ring alcohols causes nervous system symptoms. These include headache, muscle weakness and inco-ordination, giddiness, confusion, delirium and coma. 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 is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. The calculated human skin permeability coefficient for n-propanol by the U.S. Environment Protection Agency is 1.3 x 10 ⁻³ cm/hr. Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.
Eye	If applied to the eyes, this material causes severe eye damage.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course. N-propanol is shown to cause dose dependent severe liver injury, malignant tumours (blood and liver cancers) and benign tumours in rats. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)	TOXICITY	IRRITATION
	TOXICITY	IRRITATION

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)	No significant acute toxicological data identified in literature search. 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 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.
	N-PROPANOL
WATER	No significant acute toxicological data identified in literature search.

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

SKIN	n-propanol	US - Hawaii Air Contaminant Limits - Skin Designation US NIOSH Recommended Exposure Limits (RELs) - Skin US - Washington Permissible exposure limits of air contaminants - Skin US - California Permissible Exposure Limits for Chemical Contaminants - Skin	X[[skin]]S
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CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

For n-Propanol: log Kow: 0.25-0.34;
 Half-life (hr) air: 6.7;
 Half-life (hr) H₂O surface water: 6.5;
 Henry's atm m³/mol: 6.85E-06;
 BOD 5: 1.43-1.6 g O₂/g;
 BOD 20: <2 g O₂/g;
 COD : 91%;
 ThOD : 1.8 g;
 O₂/gBCF: 0.7.

Aquatic Fate: High biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism. n-Propanol is expected to biodegrade and is not expected to persist for long periods in aquatic environments. When diluted with a large amount of water, n-propanol is not expected to have a significant impact.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
n-propanol	LOW	LOW
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
n-propanol	LOW (LogKOW = 0.25)
water	LOW (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility
n-propanol	HIGH (KOC = 1.325)
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)	ICAO/IATA Class : 9 ICAO / IATA Subrisk : Not Applicable ERG Code : 9L

CHEMets Ampoules for Filming Amines CHEMets Kit & Refill (R-1001) and for Detergents CHEMets Kit & Refill (R-9401)

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	n-propanol	Y

SECTION 15 REGULATORY INFORMATION

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

n-propanol(71-23-8) 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 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"
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.

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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.: R9402

Version No.: 2.2

Product Name: Double-Tipped Ampoules for Detergents CHEMets® Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

Components of water analysis reagent sets: Refills R-9400, R-9404, R-9423; and Kits I-2017, K-9400, K-9404

Product Descriptions:

Double-Tipped Ampoules: Glass ampoules with dual tapered tips. Each double-tipped ampoule in K-9400, R-9400, K-9404, and R-9404 contains approximately 4 mL of liquid reagent. Each double-tipped ampoule in R-9423 contains approximately 9.5 mL of liquid reagent. Refills and test kits contain 20 double-tipped 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).

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



Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

CHEMetrics, Inc.

Chemwatch Hazard Alert Code: 2

Chemwatch: 9-87557

SDS No: R9402

Version No: 2.2

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

Issue Date: 23/11/2014

Print Date: 12/03/2015

Initial Date: 25/11/2014

S.GHS.USA.EN

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

Product Identifier

Product name	Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)
Synonyms	Not Available
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 reagent sets: Refills R-9400, R-9404, R-9423; and Kits I-2017, K-9400, K-9404
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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	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Reproductive Toxicity Category 2, STOT - RE Category 2
--------------------	--

Label elements

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

SIGNAL WORD **WARNING**

Hazard statement(s)

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure

Continued...

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

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.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.

Precautionary statement(s) Storage

P405	Store locked up.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
67-66-3	71	chloroform
7732-18-5	26	water
13472-35-0	2	sodium phosphate, monobasic, dihydrate
7664-93-9	1	sulfuric acid
61-73-4	<0.1	methylene blue
Not Available	<0.1	Proprietary Ingredient

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, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
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> <ul style="list-style-type: none"> ▶ 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. <p>NOTE: Wear a protective glove when inducing vomiting by mechanical means.</p> <p>NOTE: IN massive chloroform overdose, DO NOT INDUCE EMESIS because of the rapid onset of CNS depression and the risk of aspiration</p> <ul style="list-style-type: none"> ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol. ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

Indication of any immediate medical attention and special treatment needed

For chloroform intoxications:

Chloroform concentrations may be determined in blood.

Treat irritation symptomatically.

Oral Management:

Chloroform is radiopaque and X-rays confirm ingestion.

DO NOT INDUCE EMESIS because of the rapid onset of CNS depression and the risk of aspiration.

Consider gastric lavage within 1 hour of ingestion because of very rapid absorption of chloroform (use cuffed ET tube to protect airway)

Contact a poisons information service for further guidance on gut decontamination.

Systematic Management.

All patients initially require at least 24 hours observation with ECG monitoring.

Patients should be kept at complete bed rest, the use of stimulants (including adrenaline and noradrenaline) should be avoided because of the risk of sensitisation of the myocardium.

In symptomatic patients the hepatic and renal function should be monitored for at least 3-days post-exposure.

Chest X-rays will be necessary to monitor development of respiratory complications.

Chloroform depletes glutathione stores; N-acetylcysteine (used in the treatment of paracetamol overdose) has been suggested as a possible antidote for hepatotoxic organic solvents (success in carbon tetrachloride intoxications has been reported).

for intoxication due to Freons/ Halons;

A: Emergency and Supportive Measures

- ▶ Maintain an open airway and assist ventilation if necessary
- ▶ Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- ▶ Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:

- ▶ There is no specific antidote

C: Decontamination

- ▶ Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- ▶ Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:

- ▶ There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition

- ▶ Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- ▶ No specific antidote.
- ▶ Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- ▶ If lavage is performed, suggest endotracheal and/or esophageal control.
- ▶ Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- ▶ Treatment based on judgment of the physician in response to reactions of the patient

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility

- ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting

- ▶ 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

- ▶ Non combustible.
- ▶ Not considered a significant fire risk, however containers may burn.

Decomposes on heating and produces toxic fumes of; carbon dioxide (CO₂) hydrogen chloride phosgene other pyrolysis products typical of burning organic material

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills

- ▶ 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

- ▶ 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.
- ▶ Stop leak if safe to do so.

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

SECTION 7 HANDLING AND STORAGE

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

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. ▶ Avoid contact with moisture. ▶ Avoid contact with incompatible materials. <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"> ▶ Polyethylene or polypropylene container. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. ▶ DO NOT use aluminium or galvanised containers
Storage incompatibility	<p>Chloroform</p> <ul style="list-style-type: none"> ▶ decomposes in the presence of excess water, high temperature, including hot surfaces, evolving phosgene and hydrogen chloride ▶ on contact with warm water may form hydrogen chloride ▶ decomposes at ordinary temperatures in sunlight, in the absence of air, and in the dark in the presence of air ▶ may form explosive materials when mixed with strong bases, alkali metals, lithium, sodium, potassium, sodium-potassium alloys; these may be heat-, friction-, and/or impact sensitive ▶ reacts violently with light metals, aluminium, magnesium or titanium powder, disilane, potassium tert-butoxide, methylates (methoxides), potassium acetylene-1,2-dioxide, sodium amide, uranium(III) hydride ▶ reacts violently with (acetone + a base), (perchloric acid + phosphorous pentoxide), (KOH + methanol) and (NaOH + methanol). ▶ is incompatible with acetone, beryllium, decaborane, methanol, nitrogen tetroxide, strong oxidisers, fluorine, oxygen, potassium, sodium, strong mineral acids, triisopropylphosphine, chemically active metals (Li, NaK alloy), zinc ▶ attacks many plastics and rubber ▶ attacks iron and other metals in the presence of moisture and elevated temperatures ▶ may generate electrostatic charges due to low conductivity <p>Haloalkanes:</p> <ul style="list-style-type: none"> ▶ are highly reactive: some of the more lightly substituted lower members are highly flammable; the more highly substituted may be used as fire suppressants, not always with the anticipated results. ▶ may react with the lighter divalent metals to produce more reactive compounds analogous to Grignard reagents. ▶ may produce explosive compounds following prolonged contact with metallic or other azides ▶ may react on contact with potassium or its alloys - although apparently stable on contact with a wide range of halocarbons, reaction products may be shock-sensitive and may explode with great violence on light impact; severity generally increases with the degree of halocarbon substitution and potassium-sodium alloys give extremely sensitive mixtures. <p>BREITHERICK L.: Handbook of Reactive Chemical Hazards</p> <ul style="list-style-type: none"> ▶ react with metal halides and active metals, eg. sodium (Na), potassium (K), lithium (Li), calcium (Ca), zinc (Zn), powdered aluminium (Al) and aluminium alloys, magnesium (Mg) and magnesium alloys.

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	chloroform	Chloroform (Trichloromethane)	Not Available	Not Available	240 mg/m ³ / 50 ppm	Not Available
US ACGIH Threshold Limit Values (TLV)	chloroform	Chloroform	10 ppm	Not Available	Not Available	TLV® Basis: Liver & embryo/fetal dam; CNS impair
US NIOSH Recommended Exposure Limits (RELs)	chloroform	Methane trichloride, Trichloromethane	Not Available	9.78 mg/m ³ / 2 ppm	Not Available	Ca See Appendix A
US OSHA Permissible Exposure Levels (PELs) - Table Z1	sulfuric acid	Sulfuric acid	1 mg/m ³	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	sulfuric acid	Sulfuric acid	0.2 mg/m ³	Not Available	Not Available	TLV® Basis: Pulm func
US NIOSH Recommended Exposure Limits (RELs)	sulfuric acid	Battery acid, Hydrogen sulfate, Oil of vitriol, Sulfuric acid (aqueous)	1 mg/m ³	Not Available	Not Available	Not Available

EMERGENCY LIMITS


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
chloroform	Chloroform	2 ppm	Not Available	Not Available
sodium phosphate, monobasic, dihydrate	Sodium phosphate, monobasic	25 mg/m ³	270 mg/m ³	1600 mg/m ³

Continued...

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

sulfuric acid	Sulfuric acid	Not Available	Not Available	Not Available
Ingredient	Original IDLH	Revised IDLH		
chloroform	1,000 ppm	500 ppm		
water	Not Available	Not Available		
sodium phosphate, monobasic, dihydrate	Not Available	Not Available		
sulfuric acid	80 mg/m ³	15 mg/m ³		
methylene blue	Not Available	Not Available		
Proprietary Ingredient	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"> ▶ 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.
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"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream. ▶ Skin cleansing cream.
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:

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

Material	CPI
BUTYL	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
SARANEX-23	C
TEFLON	C
VITON	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AE-AUS P2	-	AE-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AE-AUS / Class 1 P2	-
up to 100 x ES	-	AE-2 P2	AE-PAPR-2 P2 ^

^ - Full-face

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)

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Two phase: Blue / Colorless		
Physical state	Liquid	Relative density (Water = 1)	1.49 (chloroform layer)
Odour	Characteristic	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	1.35 (aqueous layer)	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	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)	Partly 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 is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Chloroform concentrations of 1000-2000 parts per million (ppm) may cause dizziness, headache, fatigue, salivation and nausea. 4000 ppm may cause vomiting, serious disorientation and a fainting feeling. 14000-16000 ppm may cause rapid loss of consciousness.
Ingestion	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. Symptoms of chloroform ingestion include burning of the mouth, throat, gullet and stomach; diarrhoea and abdominal/lower chest pain; cold, clammy skin, blueness of the extremities and face, muscle cramps, dilated pupils, low blood pressure, blood vessel dilatation on the periphery, irregular breathing, respiratory failure, unconsciousness and liver damage.
Skin Contact	The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. 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	This material can cause eye irritation and damage in some persons.
Chronic	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause

Continued...

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

significant toxic effects to the mother.
Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)	TOXICITY	IRRITATION
	TOXICITY	IRRITATION

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)	<p>No significant acute toxicological data identified in literature search.</p> <p>Disinfection by products (DBPs) re formed when disinfectants such as chlorine, chloramine, and ozone react with organic and inorganic matter in water. The observations that some DBPs such as trihalomethanes (THMs), di-/trichloroacetic acids, and 3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone (MX) are carcinogenic in animal studies have raised public concern over the possible adverse health effects of DBPs. To date, several hundred DBPs have been identified.</p> <p>Numerous haloalkanes and haloalkenes have been tested for carcinogenic and mutagenic activities.</p>
CHLOROFORM	<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> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]</p>
WATER	No significant acute toxicological data identified in literature search.
SODIUM PHOSPHATE, MONOBASIC, DIHYDRATE	Data for anhydride
SULFURIC ACID	<p>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.</p> <p>Occupational exposures to strong inorganic acid mists of sulfuric acid:</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

REPROTOXIN	chloroform	ILO Chemicals in the electronics industry that have toxic effects on reproduction	
CARCINOGEN	chloroform	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors US Environmental Defense Scorecard Suspected Carcinogens US Environmental Defense Scorecard Recognized Carcinogens US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	2B P65-MC P65 Ca See Appendix A
	sulfuric acid	US Environmental Defense Scorecard Recognized Carcinogens	P65
RESPIRATORY	chloroform	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Respiratory	X
	sulfuric acid	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Respiratory US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	X

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

For Haloalkanes:

Atmospheric Fate: Fully, or partially, fluorinated haloalkanes released to the air can restrict heat loss from the Earth's atmosphere by absorbing infrared emissions from the surface. The major fate of haloalkanes in the atmosphere is via breakdown by hydroxyl radicals. These substances react with atmospheric ozone and nitrates, which also causes them to change, (transform).

Continued...

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

Chlorofluorocarbons, (CFC), haloalkanes can break down into chlorine atoms in the air, which also contribute to ozone destruction.

Terrestrial Fate: Biological breakdown of these substances is expected to be faster than non-biological breakdown, provided that there are sufficient substrates, nutrients and microbial populations.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
chloroform	HIGH (Half-life = 1800 days)	HIGH (Half-life = 259.63 days)
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
chloroform	LOW (BCF = 13)
water	LOW (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility
chloroform	LOW (KOC = 35.04)
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)	ICAO/IATA Class : 9 ICAO / IATA Subrisk : Not Applicable ERG Code : 9L
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
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Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

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	chloroform	Y
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	sulfuric acid	Y

SECTION 15 REGULATORY INFORMATION

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

chloroform(67-66-3) is found on the following regulatory lists	"US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)", "US - Idaho - Limits for Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - California Permissible Exposure Limits for Chemical Contaminants", "US National Toxicology Program (NTP) 13th Report Part B. Reasonably Anticipated to be a Human Carcinogen", "US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US - California Proposition 65 - Reproductive Toxicity", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Michigan Exposure Limits for Air Contaminants", "US EPA Carcinogens Listing", "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", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants", "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 - 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 - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)", "US TSCA New Chemical Exposure Limits (NCEL)", "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"
sodium phosphate, monobasic, dihydrate(13472-35-0) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
sulfuric acid(7664-93-9) 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 National Toxicology Program (NTP) 13th Report Part A Known to be Human 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", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "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)", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "US - Alaska Limits for Air Contaminants", "US - Washington Permissible exposure limits of air 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 - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens", "US OSHA Permissible Exposure Levels (PELs) - Table Z1"
methylene blue(61-73-4) is found on the following regulatory lists	"US - Oregon Permissible Exposure Limits (Z-3)", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
Proprietary Ingredient() is found on the following regulatory lists	"Not Applicable"

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
Not Available	Not Available
Not Available	Not Available

Double-Tipped Ampoules for Detergents CHEMets Kit and Refill (R-9402) and for Detergents Instrumental Test (R-9423)

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.

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Issuing Date 2/9/2012

Revision date 07-23-2013

Revision Number no data available

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	NITRATE REDUCING POWDER
Product Code(s)	V-6279
Recommended Use	Test kit reagent. Laboratory chemicals. Industrial (not for food or food contact use).
Company	LaMotte Company, Inc. 802 Washington Avenue P.O. Box 329 Chestertown, MD 21620 USA
Emergency telephone number	24 Hour Emergency Number (CHEM-TEL): USA, Canada, Puerto Rico 1-800-255-3924 Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION

DANGER**EMERGENCY OVERVIEW**

May be fatal if inhaled or swallowed
Harmful if swallowed, inhaled, or absorbed through skin
Irritating to eyes, respiratory system, and skin

Appearance Gray**Physical state** powder**Odor** Slight

OSHA Regulatory Status Safety information is given for exposure to the reagent as sold and considers exposure to the chemical if user has direct eye and skin contact.

Potential health effects

Principle Routes of Exposure Eye Contact, Inhalation, skin contact, and ingestion.

Acute toxicity**EYES**

Irritating to eyes.

skin

Irritating to skin. HARMFUL IF ABSORBED THROUGH SKIN.

Inhalation

Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. MAY BE FATAL IF INHALED. Irritating to respiratory system.

Ingestion

MAY BE FATAL IF SWALLOWED.

Chronic effects

This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1
Sulfanilamide	63-74-1	<2
Cadmium and compounds (as Cd)	7440-43-9	2.68
Manganese sulfate monohydrate	10034-96-5	10
Sodium citrate, dihydrate	6132-04-3	30-40
Ammonium chloride	12125-02-9	45-55

4. FIRST AID MEASURES

General advice	Show this safety data sheet to the doctor in attendance. Consult a physician.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Remove and wash contaminated clothing before re-use. Consult a physician.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel. Call a physician immediately.
Ingestion	Immediate medical attention is required. Do not induce vomiting without medical advice. Drink plenty of water. Clean mouth with water. Never give anything by mouth to an unconscious person.
Notes to Physician	See MSDS (material safety data sheet) for additional information.
Protection of First-aiders	Use personal protective equipment. See Section 8 for more detail. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Flammable properties	Not flammable.
Flash point	Not Applicable
Suitable extinguishing media	Dry chemical or CO ₂ .
Specific hazards arising from the chemical	Thermal decomposition can lead to release of toxic and corrosive gases/vapors.
Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health hazard 3	flammability 0	stability 0	Physical and Chemical Hazards N/A
HMIS	Health hazard 3	flammability 0	stability 0	

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment. Ensure adequate ventilation. Wear respiratory protection. If you have not donned special protective clothing approved for this material, do not expose yourself to any risk of this material touching you. Evacuate personnel to safe areas.
Methods for containment	Sweep up in a manner that does not disperse dust and shovel into suitable containers for disposal. Dike to collect large liquid spills. Do not flush to sewer.
Methods for cleaning up	Clean contaminated surface thoroughly. After cleaning, flush away traces with water.
OTHER INFORMATION	Ventilate the area.

7. HANDLING AND STORAGE

Handling	Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not ingest. Do not breathe vapors/dust.
Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place. Protect from moisture. Do not allow contact with air. Keep away from heat and incompatibles. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4	None known	None known	None known
Sulfanilamide 63-74-1	None known	None known	None known
Cadmium and compounds (as Cd) 7440-43-9	TWA: 0.002 mg/m ³ TWA: 0.01 mg/m ³	TWA: 0.1 mg/m ³ TWA: 0.2 mg/m ³ TWA: 5 µg/m ³	IDLH: 9 mg/m ³
Manganese sulfate monohydrate 10034-96-5	TWA: 0.2 mg/m ³	None known	IDLH: 500 mg/m ³ TWA: 1 mg/m ³ STEL: 3 mg/m ³
Sodium citrate, dihydrate 6132-04-3	None known	None known	None known
Ammonium chloride 12125-02-9	= 20 mg/m ³ STEL TWA: 10 mg/m ³	None known	TWA: 10 mg/m ³ STEL: 20 mg/m ³

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures	Showers Eyewash stations Ventilation systems.
Personal protective equipment	
Eye/face Protection	Safety glasses with side-shields. If splashes are likely to occur, wear: Face-shield. Maintain eye wash and quick drench shower facilities in work area.
Skin and body protection	Wear protective gloves/clothing. Neoprene and nitrile rubber are recommended materials.
Respiratory protection	Use mechanical ventilation (fume hood). When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene Measures	Use only with adequate ventilation. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Gray	Odor	Slight
Physical state	powder	pH	7 (0.1g/10mL water)
Flash point	Not Applicable	Autoignition temperature	no data available
Boiling Point/Range	no data available	freezing point	No information available

solubility	Partly soluble	evaporation rate	Not Applicable
Vapor pressure	no data available		

10. STABILITY AND REACTIVITY

stability	Stable under normal conditions of use and storage.
Incompatible Products	Strong acids. Strong oxidizing agents. Strong bases. Finely powdered metals.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Excessive heat. Incompatible products.
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - carbon oxides (COx), nitrogen oxides (NOx), sodium oxides, hydrogen chloride gas. Cadmium oxides. Ammonia.
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information	Harmful if swallowed, inhaled, or absorbed through skin.
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Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known
Sulfanilamide	3900 mg/kg (Rat)	None known	None known
Cadmium and compounds (as Cd)	2330 mg/kg (Rat)	None known	None known
Manganese sulfate monohydrate	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known
Ammonium chloride	1410 mg/kg (Rat)	None known	None known

Chronic toxicity

Chronic toxicity	This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).
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Chemical name	ACGIH	IARC	NTP	OSHA
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known
Cadmium and compounds (as Cd)	A2	Group 1	Known	X
Manganese sulfate monohydrate	None known	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known	None known
Ammonium chloride	None known	None known	None known	None known

ACGIH: (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Endocrine Disruptor Information

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known
Sulfanilamide	None known	None known	None known
Cadmium and compounds (as Cd)	None known	None known	None known
Manganese sulfate monohydrate	None known	None known	None known
Sodium citrate, dihydrate	None known	None known	None known
Ammonium chloride	None known	None known	None known

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Chemical name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known
Cadmium and compounds (as Cd)	None known	LC50= 0.0013 mg/L Oncorhynchus mykiss 96 h	None known	EC50 = 9.9 µg/L 96 h
Manganese sulfate monohydrate	None known	None known	None known	None known
Sodium citrate, dihydrate	EC50 1800 - 3200 mg/L 96 h	LC50= 18000 mg/L Poecilia reticulata 96 h	None known	None known
Ammonium chloride	None known	LC50= 209 mg/L Cyprinus carpio 96 h	None known	EC50 = 202 mg/L 24 h
Chemical name	Log Pow			
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known			
Sulfanilamide	None known			
Cadmium and compounds (as Cd)	None known			
Manganese sulfate monohydrate	None known			
Sodium citrate, dihydrate	None known			
Ammonium chloride	None known			

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method**

Dispose of in accordance with local regulations. Should not be released into the environment.

Contaminated packaging

Dispose of in accordance with local regulations.

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
N-(1-Naphthyl)ethylenediamine dihydrochloride - 1465-25-4	None known	None known	None known	None known
Sulfanilamide - 63-74-1	None known	None known	None known	None known
Cadmium and compounds (as Cd) - 7440-43-9	None known	None known	None known	None known
Manganese sulfate monohydrate - 10034-96-5	None known	None known	None known	None known

Sodium citrate, dihydrate - 6132-04-3	None known	None known	None known	None known
Ammonium chloride - 12125-02-9	None known	None known	None known	None known

14. TRANSPORT INFORMATION

DOT

Proper shipping name CADMIUM COMPOUNDS
Hazard Class 6.1
UN-No 2570
Packing group III

IATA

UN-No 2570
Proper shipping name CADMIUM COMPOUND
Hazard Class 6.1
Packing group III

IMDG/IMO

Proper shipping name CADMIUM COMOUNDS
Hazard Class 6.1
UN-No 2570
Packing group III

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	Present	X	X	ENCS	X	KECL	X	X
Sulfanilamide 63-74-1 (<2)	Present	X	X	3-1913; 3-1973; 3-2179	X	KE-01188	X	X
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	Present	X	X	ENCS	X	KE-04397	X	X
Manganese sulfate monohydrate 10034-96-5 (10)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Sodium citrate, dihydrate 6132-04-3 (30-40)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Ammonium chloride 12125-02-9 (45-55)	Present	X	X	1-218	X	KE-01645	X	X

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1	None known
Sulfanilamide	63-74-1	<2	None known

Cadmium and compounds (as Cd)	7440-43-9	2.68	0.1
Manganese sulfate monohydrate	10034-96-5	10	1.0
Sodium citrate, dihydrate	6132-04-3	30-40	None known
Ammonium chloride	12125-02-9	45-55	1.0

SARA 311/312 Hazard Categories

Acute health hazard	yes
Chronic Health Hazard	yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	None known	None known	None known	None known
Sulfanilamide 63-74-1 (<2)	None known	None known	None known	None known
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	None known	X	X	None known
Manganese sulfate monohydrate 10034-96-5 (10)	None known	None known	None known	None known
Sodium citrate, dihydrate 6132-04-3 (30-40)	None known	None known	None known	None known
Ammonium chloride 12125-02-9 (45-55)	5000 lb	None known	None known	X

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

Chemical name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	<1	None known	None known	None known	None known
Sulfanilamide	63-74-1	<2	None known	None known	None known	None known
Cadmium and compounds (as Cd)	7440-43-9	2.68	Present (includes any unique chemical substance that contains Cadmium as part of its infrastructure)	None known	None known	None known
Manganese sulfate monohydrate	10034-96-5	10	Present (includes any unique chemical substance that contains Manganese as part of its infrastructure)	None known	None known	None known
Sodium citrate, dihydrate	6132-04-3	30-40	None known	None known	None known	None known
Ammonium chloride	12125-02-9	45-55	None known	None known	None known	None known

CERCLA

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known
Sulfanilamide	None known	None known
Cadmium and compounds (as Cd)	10 lb	None known
Manganese sulfate monohydrate	None known	None known
Sodium citrate, dihydrate	None known	None known
Ammonium chloride	5000 lb	None known

U.S. State Regulations

California Proposition 65

WARNING! This product contains a chemical known to the State of California to cause cancer WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm

Chemical name	CAS-No	California Prop. 65
N-(1-Naphthyl)ethylenediamine dihydrochloride	1465-25-4	None known
Sulfanilamide	63-74-1	None known
Cadmium and compounds (as Cd)	7440-43-9	Carcinogen Developmental Male Reproductive
Manganese sulfate monohydrate	10034-96-5	None known
Sodium citrate, dihydrate	6132-04-3	None known
Ammonium chloride	12125-02-9	None known

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known	None known	None known	None known
Sulfanilamide	None known	None known	None known	None known	None known
Cadmium and compounds (as Cd)	X	X	X	X	X
Manganese sulfate monohydrate	None known	X	X	X	None known
Sodium citrate, dihydrate	None known	None known	None known	None known	None known
Ammonium chloride	X	X	X	None known	X

International Regulations

Mexico - Grade

Chemical name	Carcinogen Status	Exposure Limits
N-(1-Naphthyl)ethylenediamine dihydrochloride	None known	None known
Sulfanilamide	None known	None known
Cadmium and compounds (as Cd)	A2	Mexico: TWA= 0.002 mg/m ³
Manganese sulfate monohydrate	None known	Mexico: TWA= 0.2 mg/m ³
Sodium citrate, dihydrate	None known	None known
Ammonium chloride	None known	Mexico: TWA= 10 mg/m ³

CANADA

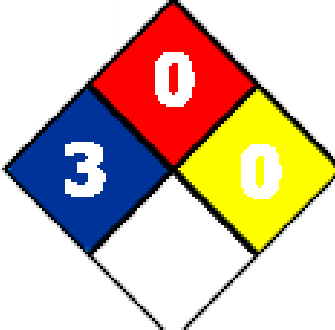


This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

Component	WHMIS Hazard Class
N-(1-Naphthyl)ethylenediamine dihydrochloride 1465-25-4 (<1)	Not Determined
Sulfanilamide 63-74-1 (<2)	Not Determined
Cadmium and compounds (as Cd) 7440-43-9 (2.68)	0.1 % D1A D2A
Manganese sulfate monohydrate 10034-96-5 (10)	1 % D2B
Sodium citrate, dihydrate 6132-04-3 (30-40)	Uncontrolled product according to WHMIS classification criteria
Ammonium chloride 12125-02-9 (45-55)	1 % D2B



Chemical name	NPRI
Cadmium and compounds (as Cd)	X

16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1"> <tr> <td>Health Hazard</td> <td>3</td> </tr> <tr> <td>Fire Hazard</td> <td>0</td> </tr> <tr> <td>Reactivity</td> <td>0</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	0		
Health Hazard	3								
Fire Hazard	0								
Reactivity	0								

Prepared by Regulatory Affairs Department
 Issuing Date 2/9/2012
 Revision date 23-Jul-2013
 Revision note (M)SDS sections updated. 16.
 Disclaimer

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

End of MSDS

Issuing Date 10/24/2011

Revision Number 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name MIXED ACID REAGENT
Product Code(s) V-6278
Synonyms none / ninguno / aucun
Recommended Use Test kit reagent. Laboratory chemicals. Industrial (not for food or food contact use).
Company LaMotte Company, Inc.
 802 Washington Avenue
 P.O. Box 329
 Chestertown, MD 21620
 USA
Emergency Telephone Number 24 Hour Emergency Number (CHEM-TEL):
 USA, Canada, Puerto Rico 1-800-255-3924
 Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION
Emergency Overview

 May be harmful if swallowed
 May cause skin, eye, and respiratory tract irritation

Appearance Clear, Blue green

Physical State Liquid

Odor Vinegar

Potential Health Effects
Principle Routes of Exposure Eye contact, Skin contact, and, Ingestion.

Acute Toxicity

Eyes May cause irritation.
Skin May cause irritation.
Inhalation May cause irritation of respiratory tract.
Ingestion May cause irritation. May be harmful if swallowed.

Chronic Effects
Aggravated Medical Conditions None known.

Environmental Hazard No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1
Sodium phosphate dibasic	7558-79-4	<0.5
Acetic acid	64-19-7	1-5
Citric acid	77-92-9	1-5
Sodium chloride USP	7647-14-5	5-15
Ammonium chloride	12125-02-9	10-20
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

General Advice	Do not get in eyes, on skin, or on clothing. Show this safety data sheet to the doctor in attendance.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact	Wash off with soap and plenty of water removing all contaminated clothes and shoes. If irritation develops or persists, consult physician.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen.
Ingestion	Drink plenty of water. Clean mouth with water. Consult a physician.
Notes to Physician	Treat symptomatically.
Protection of First-aiders	Use personal protective equipment. See Section 8 for more detail. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Not a fire hazard.			
Flash Point	Not applicable			
Suitable Extinguishing Media	Water spray, dry chemical, carbon dioxide (CO ₂), or foam.			
Explosion Data				
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus and full protective gear.			
NFPA	Health Hazard 1	Flammability 0	Stability 0	Physical and Chemical Hazards N/A
HMIS	Health Hazard 1	Flammability 0	Stability 0	

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with the skin and the eyes. Refer to Section 8.
Methods for Containment	Sweep up in a manner that does not disperse dust and shovel into suitable containers for disposal. Dispose according to federal, state, and local regulations.
Methods for Cleaning Up	Containerize spill material and hold for later disposal. If local regulations permit, dissolve with large volume of water, neutralize with alkaline material (sodium bicarbonate), then rinse to drain with excess water. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling	Handle in accordance with good industrial hygiene and safety practice. Provide appropriate exhaust ventilation at places where dust is formed. Prevent contact with skin, eyes, and clothing. Do not ingest. Do not eat, drink, or smoke when using this product.
Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place. Protect from moisture. Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8	None Known	None Known	TWA: 1 mg/m ³
Sodium phosphate dibasic 7558-79-4	None Known	None Known	None Known
Acetic acid 64-19-7	= 15 ppm STEL TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m ³	IDLH: 50 ppm TWA: 25 mg/m ³ TWA: 10 ppm STEL: 15 ppm STEL: 37 mg/m ³
Citric acid 77-92-9	None Known	None Known	None Known
Sodium chloride USP 7647-14-5	None Known	None Known	None Known
Ammonium chloride 12125-02-9	= 20 mg/m ³ STEL TWA: 10 mg/m ³	None Known	TWA: 10 mg/m ³ STEL: 20 mg/m ³
Water 7732-18-5	None Known	None Known	None Known

Engineering Measures

Provide appropriate exhaust ventilation at places where dust is formed. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment**Eye/Face Protection**

Safety glasses with side-shields. Avoid contact with eyes.

Skin and Body Protection

Gloves & Lab Coat.

Respiratory Protection

Maintain adequate ventilation.

Hygiene Measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear Blue green	Odor	Vinegar
Physical State	Liquid	pH	2-3 (0.1g/10mL water)
Flash Point	Not applicable	Autoignition Temperature	Not applicable
Boiling Point/Range	> 100°C/212°F	Flammability Limits in Air	No data available
Explosion Limits	No data available	Molecular Weight	No data available
Specific Gravity	No data available	Solubility	Soluble
Water Solubility	Soluble in water	Vapor Density	No information available
Vapor Pressure	No information available		

10. STABILITY AND REACTIVITY

Stability	Stable.
Incompatible Products	Alkalis. Strong oxidizing agents. Strong bases.
Conditions to Avoid	Exposure to air or moisture over prolonged periods. Excessive heat.
Hazardous Decomposition Products	Ammonia. Hydrogen chloride. Sodium oxides.
Hazardous Reactions	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity**Product Information**

Product does not present an acute toxicity hazard based on known or supplied information.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Copper (II) sulfate pentahydrate (1:1:5)	300 mg/kg (Rat)	1000 mg/kg (Rabbit)	None Known
Sodium phosphate dibasic	17 g/kg (Rat)	None Known	None Known
Acetic acid	3310 mg/kg (Rat)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 1 h
Citric acid	3000 mg/kg (Rat)	None Known	None Known
Sodium chloride USP	None Known	10 g/kg (Rabbit)	42 g/m ³ (Rat) 1 h
Ammonium chloride	1410 mg/kg (Rat)	None Known	None Known
Water	90 mL/kg (Rat)	None Known	None Known

Chronic Toxicity**Carcinogenicity**

There are no known carcinogenic chemicals in this product.

Chemical Name	ACGIH	IARC	NTP	OSHA
Copper (II) sulfate pentahydrate (1:1:5)	None Known	None Known	None Known	None Known
Sodium phosphate dibasic	None Known	None Known	None Known	None Known
Acetic acid	None Known	None Known	None Known	None Known
Citric acid	None Known	None Known	None Known	None Known
Sodium chloride USP	None Known	None Known	None Known	None Known
Ammonium chloride	None Known	None Known	None Known	None Known
Water	None Known	None Known	None Known	None Known

Endocrine Disruptor Information

Chemical Name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Copper (II) sulfate pentahydrate (1:1:5)	None Known	None Known	None Known
Sodium phosphate dibasic	None Known	None Known	None Known
Acetic acid	None Known	None Known	None Known
Citric acid	None Known	None Known	None Known
Sodium chloride USP	None Known	None Known	None Known
Ammonium chloride	None Known	None Known	None Known
Water	None Known	None Known	None Known

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Copper (II) sulfate pentahydrate (1:1:5)	None Known	LC50= 0.1 mg/L Oncorhynchus mykiss 96 h	EC50 < 0.25 mg/L 30 min EC50 = 0.25 mg/L 15 min EC50 = 1.3 mg/L 5 min	EC50 = 0.24 mg/L 48 h
Sodium phosphate dibasic	None Known	None Known	None Known	None Known
Acetic acid	None Known	LC50= 75 mg/L Lepomis macrochirus 96 h LC50= 88 mg/L Pimephales promelas 96 h	EC50 = 8.8 mg/L 15 min EC50 = 8.8 mg/L 25 min EC50 = 8.8 mg/L 5 min	EC50 = 95 mg/L 24 h
Citric acid	None Known	LC50= 1516 mg/L Lepomis macrochirus 96 h LC50= 440 mg/L Leuciscus idus 96 h	EC50 = 14 mg/L 15 min	EC50 = 120 mg/L 72 h
Sodium chloride USP	None Known	LC50= 12946 mg/L Lepomis macrochirus 96 h LC50= 7650 mg/L Pimephales promelas 96 h LC50= 9675 mg/L Lepomis macrochirus 96 h	None Known	EC50 = 1000 mg/L 48 h
Ammonium chloride	None Known	LC50= 209 mg/L Cyprinus carpio 96 h	None Known	EC50 = 202 mg/L 24 h
Water	None Known	None Known	None Known	None Known

Persistence and Degradability No information available.

Bioaccumulation/Accumulation No information available.

Chemical Name	Log Pow
Copper (II) sulfate pentahydrate (1:1:5)	None Known
Sodium phosphate dibasic	None Known
Acetic acid	= -0.31 20 °C
Citric acid	-1.72 20 °C
Sodium chloride USP	None Known
Ammonium chloride	None Known
Water	None Known

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose according to federal, state, and local regulations.

Contaminated Packaging Dispose of in accordance with local regulations.

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Copper (II) sulfate pentahydrate (1:1:5) - 7758-99-8	None Known	None Known	None Known	None Known
Sodium phosphate dibasic - 7558-79-4	None Known	None Known	None Known	None Known
Acetic acid - 64-19-7	None Known	None Known	None Known	None Known
Citric acid - 77-92-9	None Known	None Known	None Known	None Known
Sodium chloride USP - 7647-14-5	None Known	None Known	None Known	None Known
Ammonium chloride - 12125-02-9	None Known	None Known	None Known	None Known
Water - 7732-18-5	None Known	None Known	None Known	None Known

14. TRANSPORT INFORMATION

DOT Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8 (<0.1)	TSCA	DSL	EINECS/ELINCS	ENCS	X	KECL	X	X
Sodium phosphate dibasic 7558-79-4 (<0.5)	Present	X	X	1-497	X	KE-12344	X	X
Acetic acid 64-19-7 (1-5)	Present	X	X	2-688	X	KE-00013	X	X
Citric acid 77-92-9 (1-5)	Present	X	X	2-1318	X	KE-20831	X	X
Sodium chloride USP 7647-14-5 (5-15)	Present	X	X	1-236	X	KE-31387	X	X
Ammonium chloride 12125-02-9 (10-20)	Present	X	X	1-218	X	KE-01645	X	X
Water 7732-18-5 (to 100%)	Present	X	X	ENCS	X	KE-35400	X	X

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1	1.0
Sodium phosphate dibasic	7558-79-4	<0.5	None Known
Acetic acid	64-19-7	1-5	None Known
Citric acid	77-92-9	1-5	None Known
Sodium chloride USP	7647-14-5	5-15	None Known
Ammonium chloride	12125-02-9	10-20	1.0
Water	7732-18-5	to 100%	None Known

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8 (<0.1)	None Known	X	None Known	None Known
Sodium phosphate dibasic 7558-79-4 (<0.5)	5000 lb	None Known	None Known	X
Acetic acid 64-19-7 (1-5)	5000 lb	None Known	None Known	X
Citric acid 77-92-9 (1-5)	None Known	None Known	None Known	None Known
Sodium chloride USP 7647-14-5 (5-15)	None Known	None Known	None Known	None Known

MIXED ACID REAGENT

Product Code(s) V-6278

Ammonium chloride 12125-02-9 (10-20)	5000 lb	None Known	None Known	X
Water 7732-18-5 (to 100%)	None Known	None Known	None Known	None Known

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	<0.1	None Known	None Known	None Known	None Known
Sodium phosphate dibasic	7558-79-4	<0.5	None Known	None Known	None Known	None Known
Acetic acid	64-19-7	1-5	None Known	Group II	None Known	None Known
Citric acid	77-92-9	1-5	None Known	None Known	None Known	None Known
Sodium chloride USP	7647-14-5	5-15	None Known	None Known	None Known	None Known
Ammonium chloride	12125-02-9	10-20	None Known	None Known	None Known	None Known
Water	7732-18-5	to 100%	None Known	None Known	None Known	None Known

CERCLA

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Copper (II) sulfate pentahydrate (1:1:5)	10 lb	None Known
Sodium phosphate dibasic	5000 lb	None Known
Acetic acid	5000 lb	None Known
Citric acid	None Known	None Known
Sodium chloride USP	None Known	None Known
Ammonium chloride	5000 lb	None Known
Water	None Known	None Known

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

Chemical Name	CAS-No	California Prop. 65
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	None Known
Sodium phosphate dibasic	7558-79-4	None Known
Acetic acid	64-19-7	None Known
Citric acid	77-92-9	None Known
Sodium chloride USP	7647-14-5	None Known
Ammonium chloride	12125-02-9	None Known
Water	7732-18-5	None Known

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Copper (II) sulfate pentahydrate (1:1:5)	X	X	X	None Known	None Known
Sodium phosphate dibasic	X	X	X	None Known	None Known
Acetic acid	X	X	X	None Known	X
Citric acid	None Known	None Known	None Known	None Known	None Known
Sodium chloride USP	None Known	None Known	None Known	None Known	None Known
Ammonium chloride	X	X	X	None Known	X

Water	None Known	None Known	None Known	None Known	None Known
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International Regulations

Mexico - Grade

Chemical Name	Carcinogen Status	Exposure Limits
Copper (II) sulfate pentahydrate (1:1:5)	None Known	None Known
Sodium phosphate dibasic	None Known	None Known
Acetic acid	None Known	Mexico: TWA= 25 mg/m ³ Mexico: TWA= 10 ppm
Citric acid	None Known	None Known
Sodium chloride USP	None Known	None Known
Ammonium chloride	None Known	Mexico: TWA= 10 mg/m ³
Water	None Known	None Known

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR. information downloaded from <http://ccinfoweb.ccohs.ca/whmis/search.html>

Component	WHMIS Hazard Class
Copper (II) sulfate pentahydrate (1:1:5) 7758-99-8 (<0.1)	1 % D2B
Sodium phosphate dibasic 7558-79-4 (<0.5)	Not determined
Acetic acid 64-19-7 (1-5)	1 % B3 E D2B
Citric acid 77-92-9 (1-5)	1 % E
Sodium chloride USP 7647-14-5 (5-15)	Uncontrolled product according to WHMIS classification criteria
Ammonium chloride 12125-02-9 (10-20)	1 % D2B
Water 7732-18-5 (to 100%)	Uncontrolled product according to WHMIS classification criteria



16. OTHER INFORMATION

NFPA	HMIS	PPE	Transport Symbol						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	1	Fire Hazard	0	Reactivity	0		
Health Hazard	1								
Fire Hazard	0								
Reactivity	0								

Prepared By Regulatory Affairs Department

Issuing Date 10/24/2011

Revision Date 31-Oct-2011

Revision Note

Initial Release

Disclaimer

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

End of MSDS



MSDS

P.O. Box 329 - 802 Washington Avenue Chestertown, MD 21620 - USA

MATERIAL SAFETY DATA SHEET

TELEPHONE # FOR INFORMATION 410 778-3100

24 HOUR EMERGENCY NUMBER (CHEM-TEL): USA, Canada, Puerto Rico 800-255-3924;

Outside North American Continent 813-248-0585 (call Collect)

1. Product Identification

Product Code: 2390

Product Description: Ethylene Glycol, 30%
In sealed glass ampoule

Manufactured By: LaMotte Company
802 Washington Avenue
Chestertown, MD 21620

2. Composition/Information On Ingredients

Hazard	CAS#/Name	%	PEL	TLV
Yes	107-21-1 Ethylene Glycol	30 v/v	50 ppm	C 125 mg/cubic m as vapor
No	7732-18-5 Water	70		

3. Hazards Overview

Primary Route Of Entry: Skin Ingestion Inhalation

Warning! Harmful or fatal if swallowed. Prolonged inhalation of vapor may cause headache, respiratory tract irritation. Liquid may cause allergic skin reaction or irritation to skin and eyes. Affects central nervous system.

HMIS Hazard

Scale: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Least

Health: 2 Flammability: 0 Reactivity: 0

Carcinogenicity: None:

Other Health Related Comments:

Ethylene glycol is an experimental teratogen, mutagen, & reproductive effector (animal tests).

Product Code: 2390

Product Description: Ethylene Glycol, 30%
In sealed glass ampoule

4. First Aid Measures

Eye Contact: Flush with water for 15 minutes.

Skin Contact: Flush with water. Wash with soap and water.

Ingestion: Induce vomiting. Drink water. Call a physician immediately.

Inhalation: Remove to fresh air.

5. Fire Fighting Measures

Flash Point (Method Used): N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Dry chemical, CO₂, or water spray

Special Fire Fighting Procedures: N/A

Unusual Fire & Explosion Hazard: N/A

6. Accidental Release Measures

Wash up with water. Mop up and flush to drain.

7. Handling & Storage

Store in cool, dry, place away from such incompatible materials as strong acids and strong oxidizers.

Product Code: 2390

Product Description: Ethylene Glycol, 30%
In sealed glass ampoule

8. Exposure Controls/Personal Protection

Ventilation

Normal

Protection When Handling

Eye Protection Gloves Lab Coat

Work/Hygenic Practices: Use with adequate ventilation and avoid contact with skin and eyes. Wash after handling.

9. Physical & Chemical Properties

Appearance: Clear Colorless Liquid

Solubility In Water: Soluble

Odor: Slight, sweet

pH: N/A

Vapor Density: Unknown

Vapor Pressure: Unknown

Boiling Point: Unknown

Melting Point: N/A

10. Stability & Reactivity

Stable: Yes

Conditions To Avoid: Heat

Incompatibility (Materials To Avoid): Contact with nitric acid or other strong oxidizers

Hazardous Decomposition Products: CO_x

11. Toxicological Information

Oral human LDLo: 710 mg/kg; oral rat LD50: 4700 mg/kg for ethylene glycol

Target Organs: Central Nervous System Skin

Product Code: 2390

Product Description: Ethylene Glycol, 30%
In sealed glass ampoule

12. Ecological Information

Information Not Yet Available

13. Disposal Considerations

Small quantity: Flush down drain with excess water. Large quantity: Atomize into an incinerator. Dispose according to federal, state and local regulations.

14. Transportation Information

Not Regulated For Transport

15. Regulatory Information

Chemical Inventory Status

Hazard	Ingredient	USA	Europe	--- Canada ---		Australia	Japan
		TSCA	EC	DSL	NDSL		
Yes	107-21-1 Ethylene Glycol	Yes	Yes	Yes	No	Yes	Yes
No	7732-18-5 Distilled Water	Yes	Yes	Yes	No	Yes	Yes

Federal, State, & International Regulations

Ingredient	--- SARA 302 ---		----- SARA 313 -----		CERCLA	RCRA 261.33	TSCA 8(D)
	RQ	TPQ	Listed	Chemical Category			
107-21-1 Ethylene Glycol	No	No	Yes	No	5000	No	No
7732-18-5 Distilled Water	No	No	No	No	No	No	No

Product Code: 2390

Product Description: Ethylene Glycol, 30%
In sealed glass ampoule

--- SARA 311/312 ---

----- Australia -----

Hazard Categories

**Hazchem
Code**

**Poison
Schedule**

**This MSDS Is
WHMIS Compliant**

Ingredient **Acute** **Chronic** **Fire** **Pressure** **Reactivity**

107-21-1 Yes Yes No No No None Allocated None Allocated
Ethylene Glycol

7732-18-5 No No No No No None Allocated None Allocated
Distilled Water

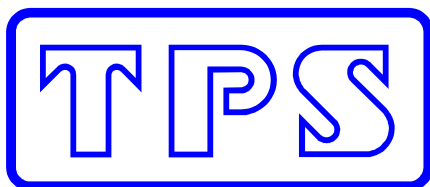
product Yes Yes No No No None Allocated None Allocated Yes
2390
as a whole

16. Other Information

Do not open or break sealed glass ampoule

Prepared By: IP, Regulatory Affairs Department

Revised: 10/13/2006



Manufacturers of Instruments for
pH, Redox, Specific Ions,
Conductivity, Salinity,
Dissolved Oxygen,
Humidity, Temperature,
for Research and Industry



Manufacturer : Australian Chemical Reagents
A Division of Roache Analysts Pty Ltd
ACN No 010 524991
Address : 19 Kensal St Moorooka Qld 4105
Phone : (07) 38484828
Fax : (07) 38925936

Date : Jan 2013

MATERIAL SAFETY DATA SHEET

Not Classified as Hazardous According to Criteria of Worksafe Australia

IDENTIFICATION

Solutions made from Potassium Chloride dissolved in water.

Part No	Product Code	Description & Volume	KCl Concentration
121311	GFDJIN	Filling Solution, Internal Double Junction Ref, 100mL	1 M
121326	GFKCL	Filling Solution for pH Probes, 100mL	3.5 M
121327	GFKCL1	Filling Solution for Reference Probes, 100mL	1 M
121328	GFKCLL	Filling Solution for pH Probes, 1 Litre	3.5 M
121554	GSK	Potassium Ion Standard, 1000 ppM, 200mL	1.906 g/L
121556	GSKL	Potassium Ion Standard, 1000 ppM, 1 Litre	1.906 g/L
121804	GFI4	ISE Internal Filling Solution 4, 45mL	0.001 M
121808	GFI8	ISE Internal Filling Solution 8, 45mL	0.1 M
121832	GISA4	Ionic Strength Adjustor 4, 200mL	Saturated Solution
121834	GISA4L	Ionic Strength Adjustor 4, 1 Litre	Saturated Solution
122305	GSC2.7L	Conductivity Standard, 2.76mS/cm, 1 Litre	0.02 M
122306	GSC2.7	Conductivity Standard, 2.76mS/cm, 200mL	0.02 M
122310	GSCUS	Custom Conductivity Standard, 1 Litre	0.005 M to 1 M, as required
122311	GSC8	Conductivity Standard, 8.0 mS/cm, 200mL	4.532 g/L
122314	GSC150	Conductivity Standard, 150 uS/cm, 1 Litre	0.069 g/L
122317	GSCUS5	Custom Conductivity Standard, 5 Litres	0.005 M to 1 M, as required
122318	GSCUS10	Custom Conductivity Standard, 10 Litres	0.005 M to 1 M, as required
122319	GSCUS25	Custom Conductivity Standard, 25 Litres	0.005 M to 1 M, as required
122320	GSC1502	Conductivity Standard, 150 uS/cm, 200 mL	0.069 g/L
122323	GSCUS.2	Custom Conductivity Standard, 200 mL	0.005 M to 1 M, as required
123303	GFO	Filling Solution, ED500, ED1 & YSI DO sensors, 45mL	1 M

UN Number : None Allocated
Other Names : Nil
Manufacturers Code : Various

Dangerous Goods Class : None Allocated
Subsidiary Risk : None Allocated
Hazchem Code : None Allocated
Poisons Schedule : Not Scheduled



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Uses : Conductivity Standards are Analytical Reagents for calibrating conductivity meters.
Ion Standards are Analytical Reagents for calibrating specific ion meters.
Filling Solutions are used to fill specific ion and reference electrodes.

Physical Description / Properties :

Appearance : Clear liquid
Boiling Point (°C) : 100 (approx)
Vapour Pressure (mm of Hg @ 25°C) : 25 (approx)
Specific Gravity : 1.2 (for 2.76 mS/cm)
Flash Point (°C) : Not flammable
Flammability Limits (%) : Not flammable
Solubility in Water (g/L) : Completely miscible

Other Properties : pH Neutral

Ingredients :

Chemical Entity	CAS No	Proportion
Potassium Chloride	[7447-40-7]	See product descriptions.
Water	[7732-18-5]	to 100%

HEALTH HAZARD INFORMATION

Health Effects :

Swallowed : May cause irritation of the gastric system. May lead to nausea, vomiting, cramps, diarrhoea.
Ingestion of large quantities may cause heart condition due to high potassium level.

Eye : May be irritating to eye tissue.

Skin : Not considered a hazard with normal laboratory use.

Inhaled : Not considered a hazard with normal laboratory use.

Chronic Effects : No data available

First Aid :

Swallowed : If conscious wash out mouth with water. Seek medical advice. Show this MSDS to medical practitioner.

Eye : Immediately hold eyelids open and flood with water for at least 15 minutes. Obtain medical aid. Show this MSDS to medical practitioner.

Skin : Remove contaminated clothing. Immediately wash skin thoroughly with water and mild soap. Seek medical advice if irritation persists. Show this MSDS to medical practitioner.

Laundry clothing before reuse.

Inhaled : Remove from contaminated air. Maintain breathing with artificial respiration if necessary. Seek medical assistance. Show this MSDS to a doctor.

Advice to Doctor :

Treat symptomatically



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PRECAUTIONS FOR USE

- Exposure Limits** : None known
- Engineering Controls** : Not usually required with normal use.
- Personal Protection** : If contact likely, wear protective clothing including safety glasses and rubber or PVC gloves.
- Flammability** : Not flammable.

SAFE HANDLING INFORMATION

- Storage & Transport** : Store sealed in original container in a cool well ventilated situation away from foods and other chemicals. Observe good hygiene and housekeeping practices.
- No special transport requirements apply.
- Spills & Disposal** : Absorb spills with sand or vermiculite. Transfer carefully to disposal container. Dispose of in accordance with local regulations.
- Fire/Explosion Hazard** : Fire fighters should wear self contained breathing apparatus and impervious clothing if exposure to fumes is likely. Use water spray, foam or dry chemical to control fire situation if compatible with other chemical products in the vicinity.

Other :

References :

Lenga, R.E. (Ed.) *Safety The Sigma Aldrich Library of Chemical Safety Data* Sigma Aldrich Corporation 1985

National Institute for Occupational Safety & Health *NIOSH Pocket Guide to Chemical Hazards* 1990.

Merck & Co Inc. *The Merck Index 11th Ed.* Merck & Co 1989.

International Labour Office *Encyclopaedia of Occupational Health & Safety* Vol 1 & 2 International Labour Office 1983

National Occupational Health & Safety Commission *Exposure Standards for Atmospheric Contaminants in the Occupational Environment* AGPS 1995

National Occupational Health & Safety Commission *List of Designated Hazardous Substances* [NOHSC:10005(1994)] AGPS 1994

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