



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.: K4203

Version No.: 2.2

Product Name: Formaldehyde Vacu-vials® Ampoules and CHEMets® & VACUettes® Refills; Glycol Vacu-vials® Ampoules and CHEMets® Refill

Part Nos.: K-4203 Ampoules, K-4403 Ampoules, K-4423 Ampoules, R-4605, R-4605A, R-4605B, R-4605C, R-4605D, R-4815

Product Descriptions:

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

VACUettes Refills: Sealed glass ampoules, 7 mm OD, with small glass capillary attached, for visual colorimetric water analysis. Each VACUette™ ampoule contains approximately 0.5 mL of liquid reagent sealed under vacuum. Refills contain 30 ampoules, test kits contain 1 refill.

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

Addendum to Section 14 Transport Information:

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

- CHEMetrics has packaged this product as Dangerous Goods in Excepted Quantities according to IATA, US DOT, and IMDG regulations.
- CHEMetrics has packaged this product as part of a test kit or reagent set composed of various chemical reagents and elected to ship as UN 3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

In case of reshipment, it is the responsibility of the shipper to determine appropriate labels and markings in accordance with applicable transportation regulations.

Additional Information:

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

Purpald® is a registered trademark of Aldrich Chemical Company.

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



Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

CHEMetrics, Inc.

Chemwatch Hazard Alert Code: 4

Chemwatch: 9-91778

SDS No: K4203

Version No: 2.2

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

Issue Date: 08/10/2014

Print Date: 20/03/2015

Initial Date: 09/10/2014

S.GHS.USA.EN

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

Product Identifier

| | |
|-------------------------------|--|
| Product name | Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill |
| Synonyms | Part Nos.: K-4203 Ampoules, K-4403 Ampoules, K-4423 Ampoules, R-4605, R-4605A, R-4605B, R-4605C, R-4605D, R-4815 |
| Proper shipping name | Chemical kits First aid kits |
| Chemical formula | Not Applicable |
| Other means of identification | Not Available |
| CAS number | Not Applicable |

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

| | |
|--------------------------|--|
| Relevant identified uses | Component of water analysis test kits K-4203, K-4403, K-4423, K-4605, K-4605A, K-4605B, K-4605C, K-4605D, K-4815 |
|--------------------------|--|

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

Label elements

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

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

Hazard statement(s)

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

Precautionary statement(s) Prevention

Continued...

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

| | |
|------|--|
| 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. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

Precautionary statement(s) Response

| | |
|----------------|--|
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 | Immediately call a POISON CENTER/doctor/physician/first aider |
| P363 | Wash contaminated clothing before reuse. |

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|-----------|-----------|---|
| 7732-18-5 | 96 | water |
| 1310-58-3 | 3 | potassium hydroxide |
| 1750-12-5 | 1 | 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole |

SECTION 4 FIRST AID MEASURES

Description of first aid measures

| | |
|---------------------|---|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. ▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. ▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). ▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. ▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. <p>This must definitely be left to a doctor or person authorised by him/her. (ICSC13719)</p> |
| Ingestion | <ul style="list-style-type: none"> ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Transport to hospital or doctor without delay. |

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short-term repeated exposures to highly alkaline materials:

Continued...

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
 - ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
 - ▶ Oxygen is given as indicated.
 - ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
 - ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.
- Alkalis continue to cause damage after exposure.

INGESTION:

- ▶ Milk and water are the preferred diluents
- No more than 2 glasses of water should be given to an adult.
- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.
 - ▶ Catharsis and emesis are absolutely contra-indicated.

* Activated charcoal does not absorb alkali.

* Gastric lavage should not be used.

Supportive care involves the following:

- ▶ Withhold oral feedings initially.
- ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.
- Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

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

Advice for firefighters

| | |
|----------------------|---|
| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area. ▶ DO NOT approach containers suspected to be hot. |
|----------------------|---|

| | |
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| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. |
|------------------------------|--|

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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|---------------------|---|
| Minor Spills | <ul style="list-style-type: none"> ▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. ▶ Check regularly for spills and leaks. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. |
|---------------------|---|

| | |
|---------------------|--|
| Major Spills | |
|---------------------|--|

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

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|----------------------|---|
| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material. ▶ Avoid smoking, naked lights or ignition sources. <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"> ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. |
|---------------------------|--|

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

Storage incompatibility

- ▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- ▶ Avoid contact with copper, aluminium and their 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 ACGIH Threshold Limit Values (TLV) | potassium hydroxide | Potassium hydroxide | Not Available | Not Available | 2 mg/m3 | TLV® Basis: URT, eye, & skin irr |
| US NIOSH Recommended Exposure Limits (RELs) | potassium hydroxide | Caustic potash, Lye, Potassium hydrate | Not Available | Not Available | 2 mg/m3 | Not Available |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---------------------|---------------------|------------|---------|----------|
| potassium hydroxide | Potassium hydroxide | 0.18 mg/m3 | 2 mg/m3 | 54 mg/m3 |

| Ingredient | Original IDLH | Revised IDLH |
|---|---------------|---------------|
| water | Not Available | Not Available |
| potassium hydroxide | Not Available | Not Available |
| 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole | 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 unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. ▶ Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. ▶ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection. ▶ Alternatively a gas mask may replace splash goggles and face shields. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <ul style="list-style-type: none"> ▶ Elbow length PVC gloves ▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▶ Overalls. ▶ PVC Apron. ▶ PVC protective suit may be required if exposure severe. ▶ Eyewash unit. ▶ Ensure there is ready access to a safety shower. |
| Thermal hazards | Not Available |

Recommended material(s)

Respiratory protection

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

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

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

| Material | CPI |
|----------------|-----|
| BUTYL | A |
| NEOPRENE | A |
| NATURAL RUBBER | C |

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

| | |
|------------------|---|
| NATURAL+NEOPRENE | C |
| NITRILE | C |
| NITRILE+PVC | C |
| PVA | C |
| PVC | C |
| VITON | 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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|---|---------------------------|--|---------------|
| Appearance | Colorless to straw yellow | | |
| Physical state | Liquid | Relative density (Water = 1) | 1.0 |
| Odour | Odourless | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | 13.5 | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | 0 | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 105 | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | Not Applicable | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Applicable | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water (g/L) | Miscible | pH as a solution | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

SECTION 10 STABILITY AND REACTIVITY

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

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | |
|------------------|--|
| Inhaled | <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhaling corrosive bases may irritate the respiratory tract. Symptoms include cough, choking, pain and damage to the mucous membrane. Not normally a hazard due to non-volatile nature of product</p> <p>The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation".</p> |
| Ingestion | <p>Ingestion of alkaline corrosives may produce burns around the mouth, ulcerations and swellings of the mucous membranes, profuse saliva production, with an inability to speak or swallow. Both the oesophagus and stomach may experience burning pain; vomiting and diarrhoea may follow.</p> <p>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.</p> |

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

| | |
|---------------------|--|
| Skin Contact | <p>The material can produce severe chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.</p> |
| Eye | <p>If applied to the eyes, this material causes severe eye damage.</p> <p>Direct eye contact with corrosive bases can cause pain and burns. There may be swelling, epithelium destruction, clouding of the cornea and inflammation of the iris. Mild cases often resolve; severe cases can be prolonged with complications such as persistent swelling, scarring, permanent cloudiness, bulging of the eye, cataracts, eyelids glued to the eyeball and blindness.</p> |
| Chronic | <p>Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.</p> <p>Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> |

| | | |
|--|----------|------------|
| Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill | TOXICITY | IRRITATION |
| Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill | TOXICITY | IRRITATION |

| | |
|--|--|
| WATER | No significant acute toxicological data identified in literature search. |
| 4-AMINO-3-HYDRAZINO-5-MERCAPTO-1,2,4-TRIAZOLE | None available. |
| Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill, POTASSIUM HYDROXIDE, 4-AMINO-3-HYDRAZINO-5-MERCAPTO-1,2,4-TRIAZOLE | <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> |

| | | | |
|--|---|---------------------------------|---|
| 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

Not Applicable

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|-------------------------|------------------|
| water | LOW | LOW |
| 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole | HIGH | HIGH |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---|------------------------|
| water | LOW (LogKOW = -1.38) |
| 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole | LOW (LogKOW = -1.2999) |

Continued...

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

Mobility in soil

| Ingredient | Mobility |
|---|-------------------|
| water | LOW (KOC = 14.3) |
| 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole | LOW (KOC = 34.39) |


SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

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

SECTION 14 TRANSPORT INFORMATION

Labels Required

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

Land transport (DOT)

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

Air transport (ICAO-IATA / DGR)

| | | | | | | | | | | | | | | | |
|---|---|--------------------|----------|---------------------------------|----------------|-------------------------------|-------|--|-----|--|-------|---|------|--|------|
| UN number | 3316 | | | | | | | | | | | | | | |
| Packing group | II | | | | | | | | | | | | | | |
| UN proper shipping name | Chemical kit †; First aid kit † | | | | | | | | | | | | | | |
| Environmental hazard | No relevant data | | | | | | | | | | | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>ICAO/IATA Class</td> <td>9</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>9L</td> </tr> </table> | ICAO/IATA Class | 9 | ICAO / IATA Subrisk | Not Applicable | ERG Code | 9L | | | | | | | | |
| ICAO/IATA Class | 9 | | | | | | | | | | | | | | |
| ICAO / IATA Subrisk | Not Applicable | | | | | | | | | | | | | | |
| ERG Code | 9L | | | | | | | | | | | | | | |
| Special precautions for user | <table border="1"> <tr> <td>Special provisions</td> <td>A44 A163</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>960</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>10 kg</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>960</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>10 kg</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y960</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>1 kg</td> </tr> </table> | 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 |
| 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) | <table border="1"> <tr> <td>IMDG Class</td> <td>9</td> </tr> <tr> <td>IMDG Subrisk</td> <td>Not Applicable</td> </tr> </table> | IMDG Class | 9 | IMDG Subrisk | Not Applicable |
| IMDG Class | 9 | | | | |
| IMDG Subrisk | Not Applicable | | | | |
| Special precautions for user | <table border="1"> <tr> <td>EMS Number</td> <td>F-A , S-P</td> </tr> <tr> <td>Special provisions</td> <td>251 340</td> </tr> </table> | EMS Number | F-A , S-P | Special provisions | 251 340 |
| EMS Number | F-A , S-P | | | | |
| Special provisions | 251 340 | | | | |

Formaldehyde Vacu-vials Ampoules and CHEMets & VACUettes Refills; Glycol Vacu-vials Ampoules and CHEMets Refill

| | |
|--------------------|-----------|
| 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 | potassium hydroxide | Y |

SECTION 15 REGULATORY INFORMATION

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

| | |
|--|---|
| water(7732-18-5) is found on the following regulatory lists | "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory" |
| potassium hydroxide(1310-58-3) is found on the following regulatory lists | "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Hawaii Air Contaminant Limits", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "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" |
| 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole(1750-12-5) 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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