

MATERIAL SAFETY DATA SHEET

I. RESALER INFORMATION:

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MSDS# TSL-402

II. MATERIAL IDENTIFICATION – INDI-TAB KIT #2:

Compressed Reagent Chemicals and indicators are designed for individual student use in chemistry laboratory courses. Each tablet contains between 0.20mg and 1.5 grams of solid chemical (pure or mixture) which is compressed into a tablet form.

III. KIT #2: INGREDIENTS, EXPOSURE LIMITS AND TOXICITY DATA

| Ingredient | Chemical Name or Formula | % Conc. | CAS | TWA | LD50-Oral | LD50-Dermal |
|--|---|--|-------------------------|-------------------|-----------|-------------|
| | | | | mg/m ³ | mg/kg | mg/kg |
| Eriochrome Black T in KNO ₃ | 1-HO-C ₁₀ H ₆ -2-N:N-1-C ₁₀ H ₄ -2-OH-5-NO ₂ -4-SO ₃ H | At least 99% KNO ₃ 0.1-1.0% Eriochrome Black T | 7757-79-1 1787-61-7 | N/A | N/A | N/A |
| Xylenol Orange in KNO ₃ | (0-Cresol Sulphonaphthalein-3'-3''-bis (methyliminodiacetic acid sodium salt) | At least 99% KNO ₃ 0.1-1.0% Xylenol Orange | 7757-79-1 3618-43-7 | N/A | N/A | N/A |
| PAR in KNO ₃ | 4-(2-Pyridylazo) Resorcinol C ₅ H ₄ N-N=C ₆ H ₃ (OH) ₂ | At least 99% KNO ₃ 0.1-1.0% PAR | 7757-79-1 1141-59-5 | N/A | N/A | N/A |
| Calcon in KNO ₃ | 1-HO- C ₁₀ H ₆ -N•NC ₁₀ H ₅ -2-OH-4-SO ₃ Na | At least 99% KNO ₃ 0.1-1.0% Calcon | 7757-79-1 2538-85-4 | N/A | N/A | N/A |
| Snazoxs in KNO ₃ | 7-(4-sulfo-1-naphthylazo)-8-hydroxyquinoline-5-sulfonic acid, sodium salt NaO ₃ SC ₁₀ H ₆ N:NC ₉ H ₄ N(OH)(SO ₃ Na | At least 99% KNO ₃ 0.1-1.0% Snazoxs | 7757-79-1 53611-17-9 | N/A | N/A | N/A |
| PAN in KNO ₃ | 1-(2-Pyridylazo)-2-Naphthol C ₅ H ₄ N-N=N-C ₁₀ H ₆ OH | At least 99% KNO ₃ 0.1-1.0% PAN | 7757-79-1 85-85-8 | N/A | N/A | N/A |
| Methylthymol Blue in KNO ₃ | C ₃₇ H ₃₉ N ₂ O ₁₃ SNa ₅ | 99.2% KNO ₃ 0.8% Methyl Thymol Blue Complexone | 7757-79-1 1945-77-3 | N/A | N/A | N/A |
| Potassium Nitrate | KNO ₃ | N/A | 7757-79-1 | N/A | N/A | N/A |
| Fast Sulphon Black in NaCl | C ₃₀ H ₁₇ N ₄ Na ₃ O ₁₁ S ₃ | At least 99% NaCl 0.1-1.0% Fast Sulphon Black F | 7647-14-5 3682-47-1 | N/A | N/A | N/A |
| Eriochrome Red B in NaCl | C ₂₀ H ₁₅ N ₄ NaO ₅ S | At least 99% NaCl 0.1%-1.0% Eriochrome Red B | 7647-14-5 3618-63-1 | N/A | N/A | N/A |

| | | | | | | |
|--------------------------------|---|---|-------------------------|-----|-----------------|----------------|
| Calcein Blue in NaCl | 8-[N,N-Bis(carboxymethyl)aminomethyl]-4-methylumbelliferone | At least 99% NaCl 0.1%-1.0% Calcein Blue | 7647-14-5 54375-47-2 | N/A | N/A | N/A |
| Arsenazo III in NaCl | 2,7-Bis(2-aronophenylaso)-1,8-dihydroxy-3,6-naphthalenedisulfonics acid | At least 99% NaCl 0.1%-1.0% Arsenazo III | 7647-14-5 1668-00-4 | N/A | N/A | N/A |
| Acid Alizarin Black SN in NaCl | N/A | At least 99% NaCl 0.1%-1.0% Acid Alizarin Black SN | 7647-14-5 N/A | N/A | N/A | N/A |
| Sodium Chloride | NaCl (Common Salt; Halite) | N/A | 7647-14-5 | N/A | 3000 (oral-rat) | 645 (iv-mouse) |

N/A = Not Available / Not Applicable

IV. HEALTH HAZARDS:

Due to the small amount of material in each tablet, the hazard associated with each package is minimal. This information is obtained from the MSDS of the individual raw materials and other reliable sources and may or may not be directly applicable to the small amount of the individual material or mixtures. The tablets are to be used under supervision of a chemist or trained laboratory instructor.

POTENTIAL HAZARD FROM ACUTE EXPOSURE

| Ingredient | Eye Contact | Ingestion | Inhalation | Skin |
|---|---------------------------------------|--|---|--|
| 1-HO-C ₁₀ H ₆ -2-N:N-1-C ₁₀ H ₄ -2-OH-5-NO ₂ -4-SO ₃ H Eriochrome Black T in KNO ₃ | Irritant | May be harmful and cause nausea, vomiting and diarrhea if ingested in large quantities. | May be Harmful | Irritant: May cause staining. |
| (0-Cresol Sulphonaphthalein-3'-3''-bis (methyliminodiacetic acid sodium salt) Xylenol Orange in KNO ₃ | Irritant | May be harmful and cause nausea, vomiting and diarrhea if ingested in large quantities. | May be Harmful | Irritant: May cause staining. |
| 4-(2-Pyridylazo) Resorcinol C ₅ H ₄ N-N=C ₆ H ₃ (OH) ₂ PAR in KNO ₃ | Irritant | May be Harmful | May be Harmful. Irritating to Mucous Membranes and Upper Respiratory Tract. | May cause irritation. |
| 1-HO- C ₁₀ H ₆ -N•NC ₁₀ H ₅ -2-OH-4-SO ₃ Na Calcon in KNO ₃ | Irritant | May be harmful and cause nausea, vomiting and diarrhea if ingested in large quantities. | May be Harmful | Irritant: May cause staining |
| 7-(4-sulfo-1-naphthylazo)-8-hydroxyquinoline-5-sulfonic acid, sodium salt NaO ₃ SC ₁₀ H ₆ N:NC ₉ H ₄ N(OH)(SO ₃)Na Snazoxs in KNO ₃ | Dust may be eye irritant. | None Identified | None Identified | Irritant: May cause staining |
| 1-(2-Pyridylazo)-2-Naphthol C ₅ H ₄ N-N=N-C ₁₀ H ₆ OH PAN in KNO ₃ | None Identified | None Identified | None Identified | None Identified |
| C ₃₇ H ₃₉ N ₂ O ₁₅ SNa ₅ Methylthymol Blue in KNO ₃ | Irritant | Severe irritation of gastrointestinal tract. | Slight irritation to upper respiratory tract. | Irritant |
| KNO ₃ Potassium Nitrate | Irritant: May cause redness and pain. | Causes irritation to gastrointestinal tract. Symptoms may include nausea, vomiting, and diarrhea. May cause gastroenteritis and abdominal pains. | Causes irritation to the respiratory tract. | Irritant: May cause redness, itching and pain. |

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|---|-------------------------------|--|---|--|
| C ₃₀ H ₁₇ N ₄ Na ₃ O ₁₁ S ₃ Fast Sulphon Black in NaCl | Irritant | None Identified. | May cause irritation to respiratory system. | Irritant |
| C ₂₀ H ₁₅ N ₄ NaO ₅ S Eriochrome Red B in NaCl | Irritant | May be harmful and cause nausea, vomiting and diarrhea if ingested in large quantities. | May be harmful. | Irritant: May cause staining |
| 8-[N,N-Bis(carboxymethyl)aminomethyl]-4-methylumbelliferone Calcein Blue in NaCl | Irritant | May be Harmful | May be Harmful. | Irritant |
| 2,7-Bis(2-arsonophenylaso)-1,8-dihydroxy-3,6-naphthalenedisulfonics acid Arsenazo III in NaCl | Irritant | May be Harmful if swallowed. | Maybe be harmful if inhaled. | May be harmful if absorbed through the skin. |
| Acid Alizarin Black SN in NaCl | Irritant | Irritant | Irritating to Respiratory System. | Irritating to Skin |
| NaCl Sodium Chloride | Contact may cause irritation. | Large doses may cause gastrointestinal irritation, weakness, and circulatory disturbances. | May cause irritation to upper respiratory tract and mucous membranes. | Contact may cause irritation. |

CHRONIC HEALTH EFFECTS due to long term or repeated exposure:

Sodium Chloride (NaCl): Has been reported to cause elevated blood pressure and accelerated respiration rate.

Arsenazo III: Listed as a possible carcinogen. There is evidence that inorganic arsenic compounds are skin and lung carcinogens in humans.

V. FIRST AID MEASURES

Skin: Wash hands thoroughly after contact using soap and warm water. If spilled on clothing, flush affected areas with water, remove contaminated clothing as soon as possible and wash before reuse.

Ingestion: Because each tablet contains a small sample size (1g or less), most of the tablets present little hazard. Rinse out the mouth with plenty of water. If ingested, drink 1-2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

Eye Contact: Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention if irritation persists.

Inhalation: Remove victim to a well ventilated area. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

VI. PHYSICAL DATA, STABILITY AND REACTIVITY DATA

| Indi-Tablet | MW / Tablet Wt. | MP °C/°F | Stability | Comments |
|--|----------------------|----------|---|--|
| Eriochrome Black T in KNO ₃ | T.W. 0.2g | N/A | Stable | Incompatible with sulphuric and nitric acids. Hydrogen Cl gas is evolved in fire. |
| Xylenol Orange in KNO ₃ | T.W. 0.05g | N/A | Highly Hygroscopic above 75% relative humidity. | Incompatible with sulphuric and nitric acids. Hydrogen Cl gas is evolved in fire. Avoid Silver Solutions and moisture. |
| PAR in KNO ₃ | M.W. 215.21 (PAR) | N/A | Stable | Incompatible with strong oxidizing agents, strong acids, strong bases, acid chlorides, acid anhydrides. Decomposition to CO, CO ₂ , NO _x |
| Calcon in KNO ₃ | T.W. 0.05g | 802°C | Highly Hygroscopic above 75% relative humidity. | Incompatible with sulphuric and nitric acids. Hydrogen Cl gas is evolved in fire. |

| | | | | |
|---------------------------------------|---------------------------|-------|---|--|
| Snazoxs in KNO ₃ | M.W. 503.41 Snazoxs | N/A | Stable: Will be consumed in general fire. | Avoid inhalation of smoke. Emits toxic fumes. |
| PAN in KNO ₃ | M.W. 249.26 (PAN) | N/A | Stable | N/A |
| Methylthymol Blue in KNO ₃ | T.W. 0.05g | 334°C | Unstable | Incompatible with combustibles, oxidizers, and acids. Decomposition (400°C) will cause oxides of Nitrogen. |
| Fast Sulphon Black F in NaCl | N/A | N/A | Stable | Emits toxic fumes of CO, CO ₂ , Nitrogen Oxides, Sulfur Oxides |
| Eriochrome Red B in NaCl | N/A | N/A | Unstable | Incompatible with strong oxidizing agents. Combustion or Decomposition emits fumes of CO, CO ₂ , Nitrogen Oxides, Sulfur Oxides |
| Calcein Blue in NaCl | N/A | N/A | Stable | Incompatible with strong oxidizing agents. Combustion or Decomposition emits fumes of CO, CO ₂ , Nitrogen Oxides. Avoid exposure to heat, sunlight and high temperature. |
| Arsenazo III in NaCl | N/A | N/A | Stable | Avoid exposure to heat, sunlight and high temperature. Incompatible with Strong oxidizing agents, bases. Decomposition emits fumes of CO, CO ₂ , Arsenic Oxides, Nitrogen Oxides, Sulfur Oxides |
| Acid Alizarin Black SN in NaCl | N/A | N/A | Stable | Incompatible with Strong oxidizing agents. Decomposition emits fumes of CO, CO ₂ , Nitrogen Oxides, Sulfur Oxides |

VII. FIRE AND EXPLOSION HAZARDS

Almost all of the Indi-Tab Kit #2 tablets, emit toxic fumes under fire conditions. See the above table for comments on each individual type. Methylthymol Blue Complexone may explode on ignition when mixed with finely divided materials. Contact with combustible materials may cause fire. Potassium Nitrate is a Strong Oxidizer. Contact with other material may cause fire. Calcein Blue and Arsenazo III in fire may produce poisonous gases.

VIII. FIRE FIGHTING MEASURES

Extinguisher: Water Spray. Carbon Dioxide, dry chemical powder or appropriate foam.

Special Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

IX. EXPOSURE CONTROLS – PERSONAL PROTECTION

Respiratory: NIOSH/OSHA-approved Respirator: mechanical exhaust.

Hand Protection: Compatible Chemical-Resistant Gloves

Eye Protection: Chemical Safety Goggles

Skin Protection: Overalls; Clean body-covering over-clothing.

Hygiene Measures: Wash thoroughly after handling.

X. STORAGE AND DISPOSAL

Store in a cool, well ventilated area, away from incompatible chemicals or materials. Avoid contact with eyes, skin, and clothing. Dispose in accordance with Federal, State and Local regulations.

The information provided in the MSDS is based on available information which is believed to be accurate and reliable. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and assume no liability resulting from its use. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

The following sources were consulted:

1. Material Safety Data Sheets of the individual ingredients.
2. Sigma-Aldrich Library of Chemical Safety Data Ed. II; 1988
3. Ridsdale & Co., Ltd., Middlesboro, England
4. GFS Chemicals, Inc., Columbus, Ohio
5. Mallinckrodt Baker, Inc., Phillipsburg, New Jersey

Practice good laboratory safety procedures when using chemicals.

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