

 Teco Diagnostics Clinical Reagent Specialists	Form	QL801-042
	Revision	A
	Prepared by	Brian Anderson
	Approved by	Owen Bry
	Issue date	1/14/2011
[MSDS] Magnesium		
1268 N. Lakeview Ave. Anaheim, CA 92807 Phone: (714) 463-1111 Fax: (714) 463-1169 www.tecodiag.com		

Section I - Name and Product

<i>Address (Street, State, and Zip Code)</i>		
1268 N. Lakeview Ave., Anaheim, California 92807 USA		
<i>Product Name</i>	<i>Part No.</i>	<i>Contact</i>
Magnesium	M527-100	(800) 222-9880 or (714) 693-7788 Monday - Friday 8:00-4:30 PST Fax No. (714) 693-3838
<i>Chemical Family or Product Type</i>	<i>Date of Preparation</i>	<i>Emergency Telephone No.</i>
Clinical Chemistry Reagent	Revised 01/03/02	CHEMTREC (800) 424-9300 International CHEMTREC (703) 527-3887

Section II - Composition

CHEMICAL NAME	Chemical Names	Concentration	CAS#
Buffered Salts	2-Ethylaminoethanol; potassium cyanide; EGTA	6.0 w/v; 0.10% w/v; 1.18mM	110-73-6; 151-50-8; 67-42-5
Color Reagent	Calmagite	0.006% w/v	3147-14-6
Standards	...	2 mEq/L	...

Other components either non-hazardous or at concentrations below that requiring hazardous listing.

Section III Hazards Identification

Emergency Overview	
The following information applies to the component materials at higher concentrations than present in the reagent. Although lower concentrations are present in the reagent, appropriate safety precautions should still be taken.	
Toxic. Toxic in contact with skin. Harmful if swallowed. Causes burns. Readily absorbed through skin. Combustible liquid.	Potassium cyanide: (*additional chronic hazards present) Highly Toxic (USA), Very Toxic (EU) Very toxic by inhalation, in contact with skin, and if swallowed. Contact with acids liberates very toxic gas. Causes burns. Target Organ(s): blood, central nervous system HMIS Rating: Health = 3*, Flammability = 0, Reactivity = 1 NFPA Rating: Health = 3, Flammability = 0, Reactivity = 1
EGTA: HMIS Rating: Health = 0, Flammability = 0, Reactivity = 0 NFPA Rating: Health = 0, Flammability = 0, Reactivity = 0	Calmagite: Irritant. Irritating to eyes, respiratory system, and skin HMIS Rating: Health = 2, Flammability = 0, Reactivity = 0 NFPA Rating: Health = 2, Flammability = 0, Reactivity = 0

Section IV First Aid Measures

Eye Exposure In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.
Oral Exposure If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.
Inhalation Exposure If inhaled, remove to fresh air. If not breathing give artificial respiration but NOT by mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.
Dermal Exposure In case of skin contact, immediately wash skin with soap and copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

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Section V – Fire and Explosive Hazard Data

Extinguishing Media (Potassium cyanide) Suitable: Appropriate foam. Unsuitable: Do not use carbon dioxide extinguisher on this material.	Flash Point (2-Ethylaminoethanol) 71°C (159.8°F) Method: closed cup	Auto ignition Temp N/A
Firefighting Measures Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions. Specific Method(s) of Fire Fighting: Potassium cyanide: Fire fighting hazard: water spray can be used to fight fire in area containing cyanide and to cool fire-exposed metal containers. However, direct contact of material with water or steam will cause decomposition liberating highly toxic hydrogen cyanide gas as well as generating a highly hazardous solution of dissolved cyanide which must be kept out of sewers and watercourses. Cyanide has been found to form explosive mixtures sometimes spontaneously with chlorates, nitrates, and nitrogen trichloride plus ammonia.		

Section VI - Accidental Release Measures

Procedures to be Followed in Case of Leak or Spill Evacuate area.
Procedures of Personal Precaution Wear self-contained breathing apparatus, chemical safety goggles, rubber boots and heavy rubber gloves.
Methods for Cleaning Up Absorb on inert material. Place material and contaminated disposables into a suitable container for disposal. Ventilate the area and wash spill site after material pickup is complete. Dispose of in accordance with federal, state, and local regulations.

Section VII – Handling and Storage

Handling User Exposure Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Refer to Section 8	Storage Keep tightly closed. Store according to package directions.
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Section VIII – Exposure Controls / PPE

Engineering Controls Safety shower and eyebath. Good general ventilation.	Personal Protective Equipment Respiratory: None required where adequate ventilation is satisfactory. Hand: chemical-resistant gloves required. Eye: chemical safety goggles or faceshield recommended. Other protective equipment: lab coat recommended
General Hygiene Measures Wash contaminated clothing before reuse. Wash thoroughly after handling.	

Exposure Limits, RTECS: Potassium Cyanide				
Country	Source	Type	Value	Remarks
USA	ACGIH	Ceiling concentration	5 mg (CN)/M3	Skin
New Zealand	OEL	---	---	Check ACGIH TLV
USA	NIOSH	Ceiling concentration	4.7 PPM (CN) / 10M	---
Exposure Limits: Potassium Cyanide				
Country	Source	Type	Value	
Poland	---	NDS	---	
Poland	---	NDSch	---	
Poland	---	NDSP	5 mg/m ³	

Section IX Physical Data

Appearance Buffer reagent = clear liquid Color reagent = red liquid Standard = clear liquid	Specific Gravity (g/cm³) 2-Ethylaminoethanol = 0.914 potassium cyanide = 1.52	Solubility EGTA = 0.1 M in NaOH 1M at 20 °C, complete, colorless
Boiling Point 2-Ethylaminoethanol = 165°C	Vapor Pressure 2-Ethylaminoethanol <1mm at 20°C	Vapor Density 2-Ethylaminoethanol = 3 g/L
Melting Point 2-Ethylaminoethanol = -90°C, EGTA = 241°C, potassium cyanide = 634°C, Calmagite = 330°C		

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Section X Stability and Reactivity

Stability			
Chemical	Stable	Conditions of Instability	Materials to Avoid
2-Ethylaminoethanol	Stable	N/A	Strong acids, strong oxidizing agents
Potassium Cyanide	Stable	May decompose on exposure to moist air or water. Absorbs carbon dioxide from air. Light sensitive.	Strong oxidizing agents, acids, iodine, permanganates, peroxides, metallic salts, chloral hydrate, alkaloids, and chlorates.
EGTA	Stable	N/A	Strong oxidizing agents
Calmagite	Stable	N/A	Strong oxidizing agents
Hazardous Decomposition Products		Hazardous Polymerization	
2-Ethylaminoethanol → Carbon monoxide, Carbon dioxide, Nitrogen oxides. Potassium Cyanide → Hydrogen cyanide, Nitrogen oxides, Potassium oxides. EGTA → Carbon monoxide, carbon dioxide, nitrogen oxides. Calmagite → Carbon monoxide, carbon dioxide, nitrogen oxides, sulfur oxides		Hazardous Polymerization: Will not occur.	

Section XI Toxicology Information

Note: The following information applies to the component materials at higher concentrations than present in the reagent. Although lower concentrations are present in the reagent, appropriate safety precautions should still be taken.				
2-Ethylaminoethanol				
Route of exposure			Target Organ(s):	
Skin absorption: Readily absorbed through skin. Inhalation: May be harmful if inhaled. Ingestion: Harmful if swallowed.			Cardiac (change in rate); Lungs, thorax, or respiration (respiratory depression); Gastrointestinal (hypermotility, diarrhea); Biochemical effects (true cholinesterase)	
Signs and Symptoms of Exposure				
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.				
Toxicity Data: 2-Ethylaminoethanol:				
Species	Route of Exposure	Concentration	Result	Remarks
Rat	Oral	1 gm/kg	LD50	---
Rat	Intraperitoneal	1170 mg/kg	LD50	Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase)
Rabbit	Skin	360 ul/kg	LD50	---
Mammal	Oral	1200 mg/kg	LD50	Cardiac (change in rate); Lungs, thorax, or respiration (respiratory depression); Gastrointestinal (hypermotility, diarrhea)
Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information (RTECS S # KK9100000).				
Potassium cyanide:				
Route of exposure			Target Organ(s)	
Skin contact: May cause skin irritation. Skin absorption: May be fatal if absorbed through skin. Eye contact: May cause eye irritation. Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be fatal if swallowed.			Blood, central nervous system, cardiovascular system, thyroid.	
Signs and Symptoms of Exposure				
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: lung irritation, cyanosis, CNS depression. To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.				



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Toxicity Data: Potassium Cyanide:				
Species	Dose	Route of Application	Result	Remarks
Human	2.857 mg/kg	Oral	LDLO	---
Rat	5 mg/kg	Oral	LD50	---
Rat	4 mg/kg	Intraperitoneal	LD50	Lungs, Thorax, or Respiration: Other changes.
Rat	7814 ug/kg	Subcutaneous	LD50	---
Rat	3600 ug/kg	Intravenous	LD50	Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration: Dyspnea.
Mouse	8.5 mg/kg	Oral	LD50	---
Mouse	5991 ug/kg	Intraperitoneal	LD50	---
Mouse	6500 ug/kg	Subcutaneous	LD50	---
Mouse	2600 ug/kg	Intravenous	LD50	Peripheral Nerve and Sensation: Flaccid paralysis without anesthesia (usually euromuscular blockage). Behavioral: Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration: Respiratory stimulation.
Dog	6 mg/kg	Subcutaneous	LD50	Behavioral: Convulsions or effect on seizure threshold.
Cat	2200 mg/kg	Intravenous	LD50	---
Rabbit	5 mg/kg	Oral	LD50	---
Rabbit	3972 ug/kg	Intraperitoneal	LD50	Blood: Other changes.
Rabbit	4 mg/kg	Subcutaneous	LD50	Lungs, Thorax, or Respiration: Other changes.
Rabbit	3256 ug/kg	Intramuscular	LD50	---
Rabbit	7870 ug/kg	Ocular	LD50	Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Other. Behavioral: Ataxia. Lungs, Thorax, or Respiration: Respiratory stimulation.
Pigeon	4 mg/kg	Intramuscular	LD50	---

Chronic Exposure – Teratogen: Potassium Cyanide:				
Species:	Dose:	Route of Application:	Exposure Time:	Result:
Rat	45 mg/kg	Intraperitoneal	1-15 D PREG	Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Chronic Exposure – Mutagen: Potassium Cyanide:				
Species:	Dose:	Cell Type:	Mutation Test:	
Rat	300 umol/L	Liver	DNA damage	
Mouse	1 mmol/L	Lymphocyte	DNA inhibition	
Mouse	1 mmol/L 48H	Mammary gland	Cytogenetic analysis	

Chronic Exposure – Reproductive Hazard: Potassium Cyanide				
Species:	Dose:	Route:	Exposure Time:	Result:
Rat	65 gm/kg	Oral	14 D PRE / 1-22 D PREG	Effects on Fertility: Other measures of fertility
Domestic Animals	1767 mg/kg	Oral	8-20W PREG / 44D POST	Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4). Effects on Newborn: Other neonatal measures or effects.

Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information (RTECS #TS8750000).

EGTA	Route of exposure	Signs and Symptoms of Exposure		
	Skin contact: May cause skin irritation. Skin absorption: May be harmful if absorbed through skin. Eye contact: May cause eye irritation. Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.	To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.		
Toxicity Data: EGTA:	Species	Route of Exposure	Concentration	Result
	Rat	Oral	3587 mg/kg	LD50
	Mouse	Intraperitoneal	150 mg/kg	LD50

Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information (RTECS #AH3760000).

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Calmagite	Route of exposure Skin contact: Causes skin irritation. Skin absorption: May be harmful if absorbed through skin. Eye contact: Causes eye irritation. Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.	Signs and Symptoms of Exposure To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.
RTECS #: N/A		

Section XII Ecological Information

2-Ethylaminoethanol, EGTA, & Calmagite: No data available.

Potassium Cyanide: Acute Ecotoxicity Tests:			
Test Type:	Species:	Time:	Value:
LC50 Fish	Lepomis macrochirus (Bluegill)	96 H	0.45 mg/L
EC50 Daphnia	Daphnia magna	48 H	2 mg/L
EC50 Daphnia	Daphnia magna	24 H	0.53 mg/L

Section XIII Disposal Considerations

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section XIV Transport Information

DOT Proper Shipping Name: None Non Hazardous for Transport: This substance is considered to be non hazardous for transport	IATA Non Hazardous for Air Transport: Non Hazardous for Air Transport
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Section XV Regulatory Information

2-Ethylaminoethanol: EU Additional Classification Symbol of Danger: T Indication of Danger: Toxic Risk Statements: R: 22 24 41 Harmful if swallowed. Toxic in contact with skin. Risk of serious damage to eyes. Safety Statements: S: 26 36/37/39 45 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	2-Ethylaminoethanol US Classification and Label Text Indication of Danger: Toxic Risk Statements: Toxic in contact with skin. Harmful if swallowed. Causes burns. Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Take off immediately all contaminated clothing. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. US Statements: Readily absorbed through skin. Combustible liquid.
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes NDSL: No	United States Regulatory Information SARA Listed: No TSCA Inventory Item: Yes

Potassium Cyanide:	Potassium Cyanide:
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<p>EU Directives Classification Symbol of Danger: T+ N Indication of Danger: Very toxic. Dangerous for the environment. R: 26/27/28 32 50/53 Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. S: 7 28 29 45 60 61 Safety Statements: Keep container tightly closed. After contact with skin, wash immediately with plenty of soap-suds. Do not empty into drains. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets</p>	<p>US Classification and Label Text Indication of Danger: Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment. Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Causes burns. Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Safety Statements: Keep container tightly closed. After contact with skin, wash immediately with plenty of water. Do not empty into drains. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets. US Statements: Target organ(s): Blood. Central nervous system.</p>
<p>Canada Regulatory Information WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes NDSL: No</p>	<p>United States Regulatory Information SARA Listed: Yes NOTES: This product is subject to SARA section 313 reporting requirements. TSCA Inventory Item: Yes</p>

<p>EGTA WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes NDSL: No</p>	<p>EGTA United States Regulatory Information SARA Listed: No TSCA Inventory Item: Yes</p>
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<p>Calmagite EU Additional Classification Symbol of Danger: Xi Indication of Danger: Irritant Risk Statements: R36/37/38 Irritating to eyes, respiratory system, and skin. Safety Statements: S26 36 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.</p>	<p>Calmagite US Classification and Label Text Indication of Danger: Irritant Risk Statements: Irritating to eyes, respiratory system, and skin. Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.</p>
<p>Canada Regulatory Information WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes NDSL: No</p>	<p>United States Regulatory Information SARA Listed: No</p>

Section XVI Other Information

This Product is labeled in accordance with CFR21 (Food and Drugs), Section 809.10.
The information contained herein has been compiled from data presented in various technical sources believed to be accurate. We make no warranties, express or implied, and assume no liability in connection with the use of this information. It is the user's responsibility to determine the suitability of this information and to assure the adoption of necessary safety precautions.

N/A - Not Applicable or Not Available