



# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>PRODUCT NAME:</b>	<b>KEMTEC 2044 COLLECTOR</b>
<b>SYNONYMS:</b>	None
<b>PRODUCT DESCRIPTION:</b>	Sodium dialkyl dithiophosphate
<b>INTENDED/RECOMMENDED USE:</b>	Mining Chemical
<b>MANUFACTURER:</b>	Kemtec Mineral Processing • 131/15 Hall St • Port Melbourne, VIC 3207 • Australia
<b>PRODUCT INFORMATION:</b>	Tel: +61 3 96463833 • Fax: +61 3 96463933
<b>EMERGENCY PHONE:</b>	INFOSAFE 1800 638 556 (24 hrs)
<b>ISSUE DATE:</b>	April 30, 2012

COMPONENT	CAS No.	% (w/w)	OSHA (PEL)	ACGIH (TLV)	Carcinogen
Sodium Diisobutyl dithiophosphate	53378-51-1	35.0-50.0	Not established	-	-
Sodium hydroxide	1310-73-2	0-1	2mg/m <sup>3</sup> (TWA)	2 mg/m <sup>3</sup> (ceiling)	-
Inorganics sulphides		0-3.8	Not established	Not established	-

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

#### APPEARANCE AND ODOR

Color: Yellow – brown

Appearance: Liquid

Odor: Slight sulfur odor, alcohol

#### STATEMENT OF HAZARD

**DANGER! CAUSES EYE BURNS AND SKIN IRRITATION**

### POTENTIAL HEALTH EFFECTS

#### EFFECTS/ROUTES OF EXPOSURE

Acute oral (rat) and acute dermal (rabbit) LD50 values for a similar product are 3.54 g/kg and 7.07 g/kg, respectively. Direct contact with this material may cause severe eye and skin irritation. Contact with acid may cause liberation of hydrogen sulfide. Hydrogen sulfide has a strong rotten-egg odor, however, some people are unable to smell the gas and exposure will deaden the sense of smell. Therefore, odor is an unreliable indicator of exposure. Overexposure to hydrogen sulfide gas may cause severe eye or respiratory tract irritation, rapid development of coma and respiratory failure. Low levels of hydrogen sulfide may cause headache, dizziness, staggering gait, neurological damage and gastritis. Refer to Section 11 for toxicology information on regulated components of this product.

## 4. FIRST AID MEASURES

<b>INGESTION:</b>	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.
<b>SKIN CONTACT:</b>	Take off immediately all contaminated clothing. Wear impermeable gloves. Wash immediately with plenty of water and soap. Pay particular attention to skin crevices, nail folds, etc. Do not reuse contaminated clothing without laundering. Do not reuse contaminated leatherware.
<b>EYES CONTACT:</b>	In case of eye contact, immediately irrigate with plenty of water for 15 minutes. Obtain medical attention without delay.
<b>INHALATION:</b>	Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

## 5. FIREFIGHTING MEASURES

### EXTINGUISHING MEDIA AND FIRE FIGHTING INSTRUCTIONS

<b>Extinguishing Media:</b>	Use water spray or fog, carbon dioxide or dry chemical to extinguish fires.
<b>Protective Equipment:</b>	Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).
<b>Special Hazards:</b>	Sulfur dioxide or hydrogen sulfide may be formed under fire conditions. Do not flush to sewer which may contain acid. This could result in generation of toxic and explosive hydrogen sulfide gas.

## 6. ACCIDENTAL RELEASE MEASURES

<b>PERSONAL PRECAUTIONS:</b>	Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8, wear impervious boots and rain suit.
<b>METHODS FOR CLEAN UP:</b>	Cover spills with some inert absorbent material. Sweep up and place in a waste disposal container. Flush area with water.
<b>ENVIRONMENTAL PRECAUTIONS:</b>	Dispose of in accordance with EPA rules and regulations.

## 7. HANDLING AND STORAGE

### HANDLING

<b>Precautionary Measures :</b>	Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.
<b>Special Handling Statements :</b>	This product should not be mixed with acids since evolution of toxic and explosive hydrogen sulfide gas could result. This precaution does not, of course, apply to addition of this reagent to flotation pulps in amounts customarily used in flotation.

<b>STORAGE</b>	None
<b>Storage Temperature:</b>	Room temperature
<b>Reason:</b>	Product integrity



## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>ENGINEERING MEASURES</b>	Utilize a closed system process when available. Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.
<b>RESPIRATORY PROTECTION:</b>	Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.
<b>EYE PROTECTION:</b>	Wear eye/face protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure.
<b>SKIN PROTECTION:</b>	Avoid skin contact. Wear impermeable gloves and suitable protective clothing.
<b>ADDITIONAL ADVICE:</b>	Food, beverage and tobacco products should not be carried, stored or consumed where this material is used. Before eating, drinking, or smoking, wash face and hands with soap and water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>COLOR, APPEARANCE AND ODOR:</b>	Amber to dark brown, clear liquid; Slight sulfur, alcohol
<b>BOILING POINT:</b>	Similar to water
<b>MELTING POINT:</b>	15.8°F - 9 °C
<b>VAPOR PRESSURE:</b>	Similar to water
<b>SPECIFIC GRAVITY:</b>	1.1-1.12 @ 25°C
<b>VAPOR DENSITY:</b>	Similar to water
<b>% VOLATILE (BY WT.):</b>	>50 (water)
<b>pH:</b>	11.0 (minimum)
<b>SATURATION IN AIR (% by Vol):</b>	Similar to water
<b>EVAPORATION RATE:</b>	Similar to water
<b>SOLUBILITY IN WATER:</b>	Complete
<b>VOLATILE ORGANIC CONTENT (EU):</b>	Not available
<b>FLASH POINT:</b>	>200°F, 93°C, Pensky-Martens Closed Cup
<b>FLAMMABLE LIMITS (% BY VOL.):</b>	Not available
<b>AUTOIGNITION TEMPERATURE:</b>	Not available
<b>DECOMPOSITION TEMPERATURE:</b>	Not available
<b>PARTIAL COEFFICIENT (n-octanol/water):</b>	Not available
<b>ODOR TRESHOLD:</b>	See Section 2 for exposure limits

## 10. STABILITY AND REACTIVITY

<b>STABILITY:</b>	Stable
<b>CONDITIONS TO AVOID:</b>	None known
<b>POLYMERIZATION:</b>	Will not occur
<b>CONDITIONS TO AVOID:</b>	None known
<b>MATERIALS TO AVOID:</b>	This product contains a neutralized dithio acid. Avoid contact with strong oxidizing agents and mineral acids.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Carbon dioxide, carbon monoxide; oxides of sulfur (includes sulfur di and tri oxides), oxides of phosphorus, hydrogen sulfide.

## 11. TOXICOLOGICAL INFORMATION

### Toxicological information for the product is found under SECTION 3: HAZARDS IDENTIFICATION.

Toxicological information on the regulated components of this product is as follows:

Inorganic sulfides are highly toxic with acute oral (RAT) and dermal (rabbit) LD50 values of approximately 100 mg/kg and 200 mg/kg, respectively. Direct contact causes irritation, pain and possible second degree burns after a few minutes of skin contact, and can cause severe eye irritation with edema and possible corneal destruction. Inhalation produces coughing, choking, headache, dizziness, weakness and difficult breathing. Short or infrequent exposures to hydrogen sulfide mist may produce irritation of respiratory passages. Lung congestion, cyanosis, bloody sputum and chest tightness may occur 6-8 hours following exposure. Ingestion will irritate/burn mouth, throat and gastrointestinal tract. Contact with stomach acid will cause hydrogen sulfide vapors to be released. Solutions can also evolve hydrogen sulfide gas under normal storage conditions. Hydrogen sulfide is readily absorbed through the skin, lungs and digestive tract lining. In the body, when hydrogen sulfide metabolism is exceeded, acute systemic poisoning results causing unconsciousness, respiratory paralysis and death.

Sodium hydroxide is corrosive to eyes, skin and the soft tissues of the digestive and respiratory tracts. Even dilute solutions of sodium hydroxide can produce irreversible damage to eyes and skin. A one percent solution/24hrs caused severe eye irritation in monkeys. Acute overexposure to sodium hydroxide mists or dusts causes severe respiratory irritation. The acute oral (rat) and dermal (rabbit) LD50 values are 104-340 mg/kg and 1250 mg/kg, respectively. The human oral LD01 is 1.57 mg/kg.

Sodium diisobutyldithiophosphate has estimated acute oral (rat) and dermal (rabbit) LD50 values of greater than 5000 mg/kg and 2000 mg/kg, respectively. Direct contact with sodium diisobutyldithiophosphate can cause eye burns and skin corrosion.

## 12. ECOLOGICAL INFORMATION

The ecological properties for this material is based on an evaluation of its components.

This material is not readily biodegradable.

This material is not classified as dangerous for the environment.

### ALGAE TEST RESULTS

Test	Duration	Procedure	Species	Results

### FISH TEST RESULTS

Test	Duration	Procedure	Species	Results
Acute toxicity, freshwater (OECD 203)	96 hr.		Rainbow Trout ( <i>Oncorhynchus mykiss</i> )	>125 mg/l LC50



**INVERTEBRATE TEST RESULTS**

Test	Duration	Procedure	Species	Results
Acute Immobilization (OECD 202)	48 hr.		Chinook Salmon (oncorhyncus tshawytscha)	>100mg/l

**ACCUMULATION TEST RESULTS**

Test	Duration	Procedure	Species	Results

**Degradation**

Test	Duration	Procedure	Results
Closed Bottle (OECD 301D)	28 days	Ready biogradability	<70%

Comment: Material does not significantly bio-accumulate

**13. DISPOSAL CONSIDERATIONS**

**RECOMMENDATIONS FOR THE PRODUCT:** In accordance with regulations for special waste, product must be taken, after pretreatment, to an authorized special waste incineration plant.

**RECOMMENDATIONS FOR PACKAGING:** Packaging that cannot be cleaned should be disposed of like the product.

**RECOMMENDATIONS CLEANSING AGENT:** Water

## 14. TRANSPORTATION INFORMATION

This section provides basic shipping classification information.  
 Refer to appropriate transportation regulations for specific requirements.

<b>U.S. DOT</b>				
PROPER SHIPPING NAME:	CAUSTIC ALKALI LIQUID, N.O.S.			
HAZARD CLASS	8			
PACKING GROUP:	II			
UN/ID NUMBER:	UN1719			
TRANSPORT LABEL REQUIRED:	CORROSIVE			
TECHNICAL NAME (N.O.S.):	Contains dithiophosphate salt			
HAZARDOUS SUBSTANCE:	Not applicable			
COMMENTS:				
<b>TRANSPORT CANADA</b>				
PROPER SHIPPING NAME:	CAUSTIC ALKALI LIQUID, N.O.S.			
HAZARD CLASS	8			
PACKING GROUP:	II			
UN/ID NUMBER:	UN1719			
TRANSPORT LABEL REQUIRED:	CORROSIVE			
TECHNICAL NAME (N.O.S.):	Contains dithiophosphate salt			
<b>ICAO/IATA</b>				
PROPER SHIPPING NAME:	CAUSTIC ALKALI LIQUID, N.O.S.			
HAZARD CLASS:	8			
PACKING GROUP:	II			
UN NUMBER:	UN1719			
TRANSPORT LABEL REQUIRED:	CORROSIVE			
PACKING INSTRUCTIONS/ MAXIMUM NET QUANTITY:	PASSENGER AIRCRAFT	809	1L	
	CARGO AIRCRAFT	813	30L	
TECHNICAL NAME (N.O.S.):	Contains dithiophosphate salt			
<b>IMO</b>				
PROPER SHIPPING NAME:	CAUSTIC ALKALI LIQUID, N.O.S.			
HAZARD CLASS:	8			
UN NUMBER:	II			
PACKING GROUP:	UN1719			
TRANSPORT LABEL REQUIRED:	CORROSIVE			
TECHNICAL NAME (N.O.S.):	Contains dithiophosphate salt			



## 15. REGULATORY INFORMATION

### INVENTORY INFORMATION

<b>United States (USA)</b>	This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C. 2601 et. Seq.
<b>Canada</b>	Components of this product have been reported to Environment Canada in accordance with Sections 66 and/or 81 of the Canadian Environmental Protection Act (1999), and are included on the Domestic Substance List.
<b>European Union (EU)</b>	All components of this product are included in the European Inventory of Existing Chemical Substances (EIECS) in compliance with Council Directive 67/548/EEC and its amendments.
<b>Australia</b>	All components of this product are included in the Australian Inventory of Chemical Substances (AICS).
<b>China</b>	All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
<b>Japan</b>	All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.
<b>Korea</b>	All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.
<b>Philippines</b>	All components of this product are NOT included on the Philippine (PICCS) inventory.

### OTHER ENVIRONMENTAL INFORMATION

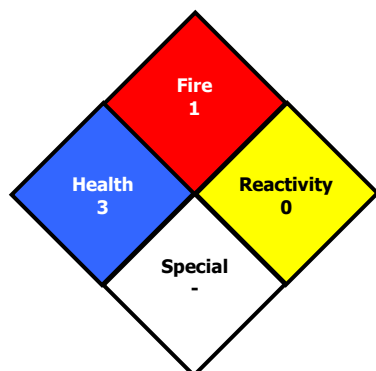
The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component	CAS NO.	% (w/w)	TPQ (lbs)	RQ (lbs)	S313	TSCA 12B
This product does not contain any components regulated under these sections of the EPA.						

### PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA

ACUTE (Y)	CHRONIC (N)	FIRE (Y)	REACTIVE (N)	PRESSURE (N)

## 16. OTHER INFORMATION



### NFPA HAZARD RATING (National Fire Protection Association)

<b>HEALTH</b> - 3 -	Materials that, under emergency conditions can cause serious or permanent injury.
<b>FIRE</b> - 1 -	Materials that must be preheated before ignition can occur.
<b>REACTIVITY</b> - 0 -	Materials that in themselves are normally stable, even under fire exposure conditions.

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**REASON FOR REVISION:** Emergency contact update

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**Prepared By:** Kenneth Lee

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**Revised By:** Nicole Watt

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**IMPORTANT:** The above information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warrant, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular uses.