

SAFETY DATA SHEET

1. Identification				
Product identifier	K-PAM® HL			
Other means of identification				
SDS number	279			
Product registration number				
EPA	5481-483 5481-484			
Synonyms	AMV 540 * Metam Potassium Manufacturing L	Jse Concentrate		
Recommended use	Soil Fumigant.			
Recommended restrictions	This is a Restricted Use Pesticide and is for use by licensed applicators only. No other uses are advised. Keep out of the Reach of Children!			
EPA Registration number	EPA: 5481-483, 5481-484			
Manufacturer/Importer/Supplier	/Distributor information			
Company Name	AMVAC Chemical Corporation			
Address	4695 MacArthur Court			
	Suite 1200			
	Newport Beach, CA 92660			
	United States			
Telephone				
AMVAC Chemical Corp	949-260-1200			
AMVAC Chemical Corp	949-260-6270(FAX)			
Product Use	888-462-6822			
Website	www.amvac.com			
E-mail	CustServ@amvac.com			
Emergency phone number Medical	888-681-4261			
CHEMTREC®	800-424-9300			
(USA+Canada)	800-424-9300			
CHEMTREC® (Outside USA)	+1-703-527-3887			
2. Hazard(s) identification				
Physical hazards	Corrosive to metals	Category 1		
Health hazards	Acute toxicity, oral	Category 4		
	Acute toxicity, dermalCategory 4Acute toxicity, inhalationCategory 4Skin corrosion/irritationCategory 1C			
	Serious eye damage/eye irritation Category 1			
	Sensitization, skin	Category 1		
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1		
	Hazardous to the aquatic environment, Category 1 long-term hazard			
OSHA defined hazards	Not classified.			
Label elements				
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Signal word	Danger
Hazard statement	May be corrosive to metals. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. May cause an allergic skin reaction. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Keep only in original container. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
Response	If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Absorb spillage to prevent material-damage. Collect spillage.
Storage	Store in corrosive resistant container with a resistant inner liner. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced in section 15. The pesticide label also includes other important information, including directions for use.

3. Composition/information on ingredients

Mixtures			
Chemical name	Common name and synonyms	CAS number	%
Potassium Methyldithiocarb	amate	137-41-7	54
Composition comments	All concentrations are in percent by weight.		
4. First-aid measures			
Inhalation	Remove victim to fresh air and keep at rest in breathing, call 911 or an ambulance, then give possible. Get medical attention immediately.		
Skin contact	Take off immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center for treatment advice.		
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.		
Ingestion	Call a physician or poison control center imme water if able to swallow. Do not induce vomition vomiting occurs, keep head low so that stoma anything by mouth to a victim who is unconsc	ng without advice from poison on the content doesn't get into the	control center. If

Most important symptoms/effects, acute and delayed	Overexposure to K-PAM HL as sold may result in damage to the skin, skin irritation, excessive salivation, sweating, fatigue, weakness, nausea, headache, dizziness, eye, nose, throat and respiratory tract irritation. In addition, dilution to use levels results in the release of methyl isothiocyanate (MITC) and/or hydrogen sulfide. Overexposure to MITC may result in strong skin and eye irritation, running nose, dizziness, cramps, nausea, vomiting, and mild to severe disturbances of the nervous system. Overexposure to hydrogen sulfide may result in headache, dizziness, excitement, staggering gait, diarrhea, difficult or painful urination, difficult breathing, chronic pulmonary edema, coma and death. Chronic exposure may also cause conjunctivitis, photophobia, digestive disturbances, weight loss, general bodily weakness, and blurred vision. In addition, laboratory studies have shown that exposure to the active ingredient, followed by ingestion of alcohol, may cause an adverse reaction, including low blood pressure, rapid heartbeat, and flushing of the skin. Consumption of alcohol
Indication of immediate medical attention and special treatment needed	during and after exposure to this product should be avoided. Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Contact your local or State Poison control Center for further information.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
5. Fire-fighting measures	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	Material reacts with water. Dilution with water may cause generation of flammable and toxic fumes of MITC and Hydrogen sulfide. See Chemical Stability information in Section 10.
Specific hazards arising from the chemical	Material reacts with water. This product can release toxic fumes of methyl isothiocyanate (MITC) and hydrogen sulfide, as well as nitrogen oxides, when heated to decomposition or diluted with water. Fire may produce irritating, corrosive and/or toxic gases.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Evacuate the area promptly. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
6. Accidental release meas	sures
Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Avoid contact with eyes, skin, and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Siphon the majority of the liquid into drums for use or disposal, depending on the circumstances. Clean the area as described for a small spill.
	Small Spills: Absorb spillage with non-combustible, absorbent material. Scoop up used absorbent into drums or other appropriate container. Scrub the area with detergent and water. Rinse with water. Pick up wash liquid with additional absorbent and place in a disposable container.
	Never return spills to original containers for reuse. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage	
Precautions for safe handling	Read label before use. Keep away from heat and sources of ignition. Keep out of the reach of children. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective

children. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Do not breathe mist/vapors. Do not taste or swallow. When using, do not eat, drink or smoke. Avoid release to the environment. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities
Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Keep away from food, drink and animal feedstuffs. Store away from incompatible materials (see Section 10 of

the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

This mixture has no ingredients that have PEL, TLV, or other recommended exposure limits.

This mixture has no ingredient	s that have T LL, TLV, of other recommended exposure limits.		
Biological limit values	No biological exposure limits noted for the ingredient(s).		
Appropriate engineering controls	Mechanical ventilation or local exhaust ventilation may be required. Eye wash facilities and emergency shower must be available when handling this product.		
Individual protection measures,	such as personal protective equipment		
Eye/face protection	Safety glasses with side shields or tight fitting chemical goggles should be used whenever hazardous chemicals are being handled. A full face respirator should be worn whenever there is a chance of splashing or misting.		
Skin protection			
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.		
Other	Wear appropriate chemical resistant clothing (see label). Long-sleeved shirt and long pants or coveralls, socks and closed toe shoes are required. If there is a possibility of splashing or spillage, a chemical resistant apron or chemical resistant coverall should also be worn.		
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A full-face respirator or a SCBA may be required if misting or splashing are possible.		
Thermal hazards	Not applicable.		
General hygiene considerations	Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.		

9. Physical and chemical properties

Appearance			
Physical state	Liquid.		
Form	Liquid.		
Color	Light yellow-green		
Odor	Essentially odorless to fairly strong odor of amine or sulfur.		
Odor threshold	Not available.		
рН	9 - 11.5		
Melting point/freezing point	Not available.		
Initial boiling point and boiling range	233.6 °F (112 °C)		
Flash point	>200 °F (>93.3 °C) Closed Cup		
Evaporation rate	1 compared to water		
Flammability (solid, gas)	Not applicable.		
Upper/lower flammability or exp	losive limits		
Explosive limit - lower (%)	Not available.		
Explosive limit - upper (%)	Not available.		
Vapor pressure	24 mm Hg at 25 °C		
Vapor density	Not available.		
Relative density	1.27 (20 °C / 4 °C)		
Solubility(ies)			
Solubility (water)	Miscible		
Partition coefficient (n-octanol/water)	Not available.		
Auto-ignition temperature	Not available.		
Decomposition temperature	Not available.		
Viscosity	Not available.		
Other information	The data presented in this section are typical values and should not be construed as a specification.		
Bulk density	10.6 lb/gal		

Explosive properties	Not explosive.
Flammability class	Combustible IIIB
Molecular formula	C2H5NS2.K
Molecular weight	145.29 g/mol
Oxidizing properties	Not oxidizing.
10. Stability and reactivity	
Reactivity	May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
	K-PAM HL decomposes, when diluted with water, to methyl isot and moderate poison) and/or to hydrogen sulfide (a highly poiso

	K-PAM HL decomposes, when diluted with water, to methyl isothiocyanate (MITC, a lachrymator and moderate poison) and/or to hydrogen sulfide (a highly poisonous gas). Use the solution promptly after mixing. Do not allow the solution to stand. K-PAM HL can also decompose to carbon disulfide and monomethylamine (both highly flammable) if contacted with a strong acid.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with water liberates flammable gas. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	This product is incompatible with additional water and strong aqueous acids. In addition, it is corrosive to copper, brass, and zinc, and may soften and/or discolor iron.
Hazardous decomposition products	When treated with water or heated to decomposition, this product will give off toxic fumes of methyl isothiocyanate (MITC), hydrogen sulfide, and nitrogen oxides. If treated with strong acids, fumes of carbon disulfide and monomethylamine will be given off.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled.			
Skin contact	Harmful in contact with skin. Causes skin burns. May cause an allergic skin reaction.			
Eye contact	Causes serious eye damage.			
Ingestion	Harmful if swallowed.			
Symptoms related to the physical, chemical and toxicological characteristics	Overexposure to K-PAM HL as sold may result in damage to the skin, skin irritation, excessive salivation, sweating, fatigue, weakness, nausea, headache, dizziness, eye, nose, throat and respiratory tract irritation. In addition, dilution to use levels results in the release of methyl isothiocyanate (MITC) and/or hydrogen sulfide. Overexposure to MITC may result in strong skin and eye irritation, running nose, dizziness, cramps, nausea, vomiting, and mild to severe disturbances of the nervous system. Overexposure to hydrogen sulfide may result in severe irritation to the eyes and mucous membranes. In addition, exposure may result in headache, dizziness, excitement, staggering gait, diarrhea, difficult or painful urination, difficult breathing, chronic pulmonary edema, coma and death. Chronic exposure may also cause conjunctivitis, photophobia, digestive disturbances, weight loss, general bodily weakness, and blurred vision. In addition, laboratory studies have shown that exposure to the active ingredient, followed by ingestion of alcohol, may cause an adverse reaction, including low blood pressure, rapid heart beat, and flushing of the skin. Consumption of alcohol during and after exposure to this product should be avoided. Impaired pulmonary function and preexisting eye problems may be aggravated. Preexisting skin diseases may also be aggravated by exposure to the decomposition products.			
Information on toxicological effe	ects			
Acute toxicity	Harmful if swallowed. Harmful if inhaled.	Harmful in contact with skin.		
Product	Species	Test Results		
K-PAM® HL Acute				
Dermal LD50	Rabbit	> 1000 mg/kg		
Inhalation <i>Mist</i> LC50	Rat	2.28 mg/l, 4 Hours (for Metam Sodium)		
Oral LD50	Rat	630 mg/kg		

Skin corrosion/irritation	Corrosive to skin and eyes.			
Irritation Corrosion - Skin				
K-PAM® HL	Result: Corrosive			
Serious eye damage/eye irritation	Causes serious eye damage.			
Eye				
K-PAM® HL	Result: Corrosive			
Respiratory or skin sensitizatior Respiratory sensitization	Not a respiratory sensitizer.			
Skin sensitization	May cause an allergic skin reaction.			
Skin sensitization				
K-PAM® HL	Result: Probable sensitizer			
Germ cell mutagenicity	No evidence of mutagenicity has been observed in animal testing.			
Carcinogenicity	Based on available data, the classification criteria are not met. Limited evidence of a carcinogenic effect.			
IARC Monographs. Overall I	Evaluation of Carcinogenicity			
Not listed.				
Not listed.	d Substances (29 CFR 1910.1001-1053)			
	ogram (NTP) Report on Carcinogens			
Not listed.				
Reproductive toxicity	This product has not shown any reproductive effects in laboratory animals.			
Specific target organ toxicity - single exposure	Not classified.			
Specific target organ toxicity - repeated exposure	Not classified.			
Aspiration hazard	Not an aspiration hazard.			
12. Ecological information				
Ecotoxicity	Very toxic to aquatic life with long lasting effects. This product is toxic to fish. Do not apply directly			
	to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.			
Persistence and degradability	Product decomposes rapidly in wet environments.			
Bioaccumulative potential	Decomposes rapidly - will not bioaccumulate.			
Mobility in soil	This product decomposes when diluted with water and the decomposition products will leach from the soil.			
Other adverse effects	None known.			
13. Disposal consideration	าร			
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site according to all applicable regulations. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with all applicable local/regional/national/international regulations.			
Local disposal regulations	Dispose in accordance with all applicable regulations.			
Hazardous waste code	D002: Waste Corrosive material [pH \leq 2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.			
Waste from residues / unused products	Dispose of in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.			
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal according to all applicable regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.			
14. Transport information				
DOT				
UN number	UN3266			

UN proper shipping name	Corrosive liquid, basic, inorganic, n.o.s. (Potassium methyldithiocarbamate), MARINE POLLUTANT			
Transport hazard class(es)				
Class	8			
Subsidiary risk	-			
Label(s)	8			
Packing group				
Environmental hazards				
Marine pollutant	Yes			
•	Read safety instructions, SDS and emergency procedures before handling. Read safety			
Special precautions for user	instructions, SDS and emergency procedures before handling.			
Special provisions	IB3, T7, TP1, TP28			
Packaging exceptions	154			
Packaging non bulk	203			
	241			
Packaging bulk IATA	241			
	100000			
UN number	UN3266			
UN proper shipping name	Corrosive liquid, basic, inorganic, n.o.s. (Potassium methyldithiocarbamate)			
Transport hazard class(es)				
Class	8			
Subsidiary risk	-			
Packing group	III			
Environmental hazards	No.			
ERG Code	8L			
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.			
Other information				
Passenger and cargo	Allowed with restrictions.			
aircraft				
Cargo aircraft only	Allowed with restrictions.			
Read safety instructions, SDS	and emergency procedures before handling. Read safety instructions, SDS and emergency			
procedures before handling.				
IMDG				
UN number	UN3266			
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Potassium methyldithiocarbamate), MARINE POLLUTANT			
Transport hazard class(es)				
Class	8			
Subsidiary risk	-			
Packing group	III			
Environmental hazards				
Marine pollutant	Yes			
EmS	F-A, S-B			
_	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.			
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.			

DOT





Marine pollutant



General information

DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

This product is registered under EPA/FIFRA Regulations as a RESTRICTED USE PESTICIDE. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

HAZARD TO HUMANS AND DOMESTIC ANIMALS.

DANGER: Fatal if absorbed through skin. CORROSIVE. Causes skin burns and irreversible eye damage. Do not get in eyes, on skin, or on clothing. May be fatal if inhaled or swallowed. Do not breathe vapors or spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to mammals, birds, fish, and aquatic invertebrates.

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

K-PAM has certain properties and characteristics in common with chemicals that have been detected in groundwater (highly soluble in water and has low adsorption to soil).

For untarped applications, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulate	d Substances (20 CE	D 1010 1001 1052)		
Not listed.	a Substances (29 Cr	R 1910.1001-1055)		
Superfund Amendments and Re	authorization Act of	1986 (SARA)		
SARA 302 Extremely hazar	dous substance			
Not listed.				
SARA 311/312 Hazardous chemical	Yes			
Classified hazard categories	Corrosive to metal Acute toxicity (any r Skin corrosion or irr Serious eye damag Respiratory or skin s	itation e or eye irritation		
SARA 313 (TRI reporting)				
Chemical name		CAS number	% by wt.	_
Potassium Methyldithioc	arbamate	137-41-7	54	
Other federal regulations				
Clean Air Act (CAA) Sectior	n 112 Hazardous Air I	Pollutants (HAPs) List		
Not regulated. Clean Air Act (CAA) Sectior	n 112(r) Accidental Re	elease Prevention (40 Cl	FR 68.130)	
Not regulated.				
Safe Drinking Water Act (SDWA)	Not regulated.			
US state regulations				
California Proposition 65				
			ldithiocarbamate, which is go to www.P65Warnings.c	
California Proposition	65 - CRT: Listed date	Carcinogenic substanc	e	
Potassium Methyldit	hiocarbamate (CAS 1	37-41-7) Listed: Decen	nber 31, 2010	
International Inventories				
Country(s) or region	Inventory name			On inventory (yes/no)*
United States & Puerto Rico		ontrol Act (TSCA) Invento	ory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s) A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	Apr-06-2015
Revision date	Jun-12-2023
Version #	4.0
HMIS® ratings	Health: 3 Flammability: 1 Physical hazard: 1 Personal protection: C
NFPA ratings	Health: 3 Flammability: 1 Instability: 1

This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

AMVAC Chemical Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

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Revision information

This document has undergone significant changes and should be reviewed in its entirety.