



Ash Stevens Inc.
 5861 John C. Lodge Freeway
 Detroit, MI 48202
 1-(313)-872-6400

Material Safety Data Sheet

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SECTION I: CHEMICAL PRODUCT AND COMPANY INFORMATION

Ash Stevens Inc. 5861 John C. Lodge Freeway Detroit, MI 48202	Telephone Number for Information 1-(313)-872-6400 Date Prepared 10/14/2005
Product Code: FP010 Material Name: Busulfan	Emergency Telephone Number 1-800-535-5053

SECTION II: COMPOSITION/INFORMATION ON INGREDIENTS

Specific Chemical Identity		Exposure Limits		
Name Busulfan	CAS #	PEL	TWA	LD50
1,4-butanediol dimethanesulfonate MF CH ₃ SO ₂ O(CH ₂) ₄ OSO ₂ CH ₃ MW 246 dultons	55-98-1	NONE ESTABLISHED	NONE ESTABLISHED	110 MOUSE ORAL

SECTION III: HAZARDS IDENTIFICATION

ACUTE EFFECTS	TOXIC MAY BE HARMFUL BY INHALATION, INGESTION OR ABSORPTION THROUGH THE SKIN. MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE NAUSEA, VOMITING, AND DIARRHEA.
CHRONIC EFFECTS	IMPOTENCE, STERILITY, MAY CAUSE CANCER, MAY CAUSE FETAL MALFORMATION, APLASTIC ANEMIA, PULMONARY FIBROSIS.
TARGET ORGANS	BLOOD, BONE MARROW, EYES, LUNGS, GASTROINTESTINAL TRACT
PRIMARY ROUTES OF ENTRY	INHALATION, INGESTION, EYE AND SKIN ABSORPTION
CARCINOGENICITY	NTP - YES IARC - YES OSHA - YES



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SECTION IV: FIRST AID MEASURES	
EYES	GENTLY LIFT EYELIDS AND FLUSH IMMEDIATELY AND CONTINUOUSLY WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 20 MINUTES. CALL A HOSPITAL OR POISON CONTROL. IMMEDIATELY TRANSPORT VICTIM TO HOSPITAL EVEN IF THERE ARE NO SYMPTOMS
SKIN	IN CASE OF CONTACT IMMEDIATELY REMOVE CONTAMINATED CLOTHING AND SHOES. IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. IF REDNESS OR IRRITATION DEVELOPS CONTACT A PHYSICIAN AND BE PREPARED TO TRANSPORT VICTIM TO HOSPITAL
INGESTION	IF SWALLOWED, WASH OUT MOUTH WITH WATER AND GIVE 1 OR 2 GLASSES OF WATER PROVIDED THE PERSON IS CONSCIOUS. DO NOT INDUCE VOMITING OUTSIDE OF A PHYSICIAN'S CARE. IMMEDIATELY CONTACT A PHYSICIAN AND IMMEDIATELY TRANSPORT VICTIM TO HOSPITAL
INHALATION	REMOVE PROMPLY TO FRESH AIR. IF BREATHING IS DIFFICULT GIVE OXYGEN. IMMEDIATELY CONTACT A PHYSICIAN AND BE PREPARED TO TRANSPORT VICTIM TO HOSPITAL.

SECTION V: FIRE FIGHTING MEASURES	
FLASH POINT	NOT GIVEN
AUTO IGNITION TEMPERATURE	NOT GIVEN
FLAMMABILITY LIMITS	NOT GIVEN
EXTINGUISHING MEDIA	WATER SPRAY, CO ₂ , DRY CHEMICAL, CHEMICAL FOAM
SPECIAL FIRE FIGHTING PROCEDURES	WEAR SELF-CONTAINED BREATHING APPARTUS. WEAR PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE & EXPLOSION HAZARDS	EMITS TOXIC FUMES OF CARBON MONIOXIDE, CARBON DIOXIDE, AND SULFUR OXIDES IN FIRE CONDITIONS



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SECTION VI: ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR RELEASE	COVER SPILLED POWER WITH PAPER TOWELS OR EQUIVALENT SPRAY WATER ON TOP OF TOWEL AND PICK UP MATERIAL AND PLACE ALL CONTAMINATED MARERIAL IN TO PLASTIC BAG AND DISPOSE OF. FINISH CLEANING AREA WITH ORGANIC SOLVENTS AND THEN FLUSH AREA WITH LARGE AMOUNT OF WATER.
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SECTION VII: HANDLING AND STORAGE

STORAGE PRECAUTIONS	KEEP IN TIGHTLY SEALED CONTAINER AT AMBIENT TEMPERATURES AND PROTECT FROM MOISTURE.
HANDLING PRECAUTIONS	WEAR RUBBER OR LATEX GLOVES USE A NIOSH-MSHA APPRROVED RESPIRATOR AND LABORATORY COAT WHEN HANDLING. LABORATORY OPERATIONS SHOULD BE CONDUCTED IN A CHEMICAL FUMEHOOD OR GLOVE BOX. AVOID GENERATING DUST. AVOID PROLONGED OR REPEATED EXPOSURE. WASH THOROUGHLY AFTER HANDLING.
LABEL PRECAUTIONARY STATEMENTS	TOXIC. THIS CHEMICAL IS A KNOWN CARCINOGEN. MAY CAUSE BLOOD PROBLEMS, BONE MARROW DEPRESSION, INFLAMMATION OF THE GASTROINTESTINAL TRACT, KIDNEY, URETER, AND BLADDER PROBLEMS.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION	WEAR THICK RUBBER OR LATEX GLOVES AND LABORATORY COAT WHEN HANDLING
RESPIRATOR	WEAR A NIOSH-MSHA APPRROVED RESPIRATOR
ENGINEERING CONTROLS	A CHEMICAL FUMEHOOD, GLOVE BOX, AND EYE WASH AND SAFETY SHOWER
CONTAMINATED ITEMS	PLACE CONTAMINATED ITEMS IN A PLASTIC BAG AND HOLD FOR WASTE DISPOSAL. LAUNDER CONTAMINATED CLOTHING BEFORE REUSING.
COMMENTS	TOXIC, THIS CHEMICAL IS A KNOWN CARCINOGEN. IS TERATOGENIC. SEE OSHA TECHNICAL MANUAL SECTION VI: CHAPTER 2.



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SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES			
PHYSICAL STATE	SOLID	SPECIFIC GRAVITY	NOT APPLICABLE
COLOR	WHITE TO OFF WHITE CRYSTALS	MOLECULAR WEIGHT	246 dultons
ODOR	NONE	SOLUBILITY IN WATER	DECOMPOSES
BOILING POINT	NOT APPLICABLE	VAPOR PRESSURE MM/Hg	NOT APPLICABLE
MELTING POINT	114°C TO 118°C	VAPOR DENSITY AIR = 1	NOT APPLICABLE
VOLATILITY	NOT APPLICABLE	EVAPORATION RATE	NOT APPLICABLE

SECTION X: STABILITY AND REACTIVITY	
STABILITY	STABLE
HAZARDOUS POLYMERIZATION	WILL NOT OCCUR
INCOMPATIBILITIES	STRONG OXIDIZING AGENTS
CONDITIONS TO AVOID	AVOID CONTACT WITH MOISTURE
PRODUCTS OF DECOMPOSITION	CARBON MONIOXIDE, CARBON DIOXIDE, AND SULFUR OXIDES



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SECTION XI: TOXICOLOGICAL INFORMATION

TOXICITY TO ANIMALS	RAT ORAL	LD 50	1860 ug/kg
	RAT IPR	LD 50	18 mg/kg
	RAT SCU	LD50	22 mg/kg
	RAT INV	LD50	1800 mg/kg
	MOUSE ORAL	LD50	110 mg/kg
	MOUSE IPR	LD50	86 mg/kg
	MOUSE SCU	LD50	63 mg/kg
	MOUSE UNR	LD50	46 mg/kg
TOXIC EFFECTS ON HUMANS	THIS CHEMICAL IS A KNOWN CARCINOGEN. MAY CAUSE BLOOD PROBLEMS, BONE MARROW DEPRESSION, INFLAMMATION OF THE GASTROINTESTINAL TRACT, KIDNEY, URETER, AND BLADDER PROBLEMS. MAY BE HARMFUL TO FETUS. MAY CAUSE BIRTH DEFECTS. MAY CAUSE HODGKINS DISEASE. FOR COMPLETE INFORMATION SEE RTECS DATABASE. SEE OSHA TECHNICAL MANUAL SECTION VI: CHAPTER 2.		

SECTION XII: ECOLOGICAL INFORMATION

NOT AVAILABLE

SECTION XIII: DISPOSAL CONSIDERATIONS

DISPOSAL	MIX THE MATERIAL WITH A COMBUSTABLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTER BURNER AND SCRUBBER. OBSERVE ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS.
CERCLA	NO REPORTABLE QUANTY



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SECTION XIV: TRANSPORTATION INFORMATION

PROPER D.O.T. SHIPPING NAME	TOXIC SOLID ORGANIC NOS (BUSULFAN)
HAZARD CLASS/DIVISION	TOXIC
UNITED NATIONS #	UN2811
D.O.T. PACKING GROUP	PG III
D.O.T. LABELS	TOXIC 6.1

SECTION XV: OTHER REGULATORY INFORMATION

FEDERAL & STATE REGULATIONS	SEE OSHA TECHNICAL MANUAL SECTION VI: CHAPTER 2.
CALIFORNIA PROPOSITION 65	THIS CHEMICAL IS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND REPRODUCTIVE AND DEVELOPMENTAL PROBLEMS.
OTHER REGULATIONS	NONE

SECTION XVI: OTHER INFORMATION

THE INFORMATION AND RECOMMENDATIONS SET FORTH IN THIS MSDS ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE CORRECT AS OF THE DATE HEREOF. ASH STEVENS INC., HOWEVER, MAKES NO REPRESENTATIONS AS TO THE COMPLETENESS OR ACCURACY THEREOF, AND INFORMATION IS SUPPLIED UPON THE EXPRESS CONDITIONS THAT THE PERSONS RECEIVING SAME WILL BE REQUIRED TO MAKE THEIR OWN DETERMINATION AS TO ITS SUITABILITY FOR THEIR PURPOSE PRIOR TO USE. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OF THE PRODUCT TO WHICH INFORMATION REFERS.