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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	30588
NAME:	Cobalt(II) sulfate hydrate
SYNONYMS:	
24 HOUR EMERGENCY TELEPHONE:	(800) 535-5053(USA) 352-323-3500 (INTERNATIONAL)
TO REQUEST AN MSDS:	(800) 869-9290
CUSTOMER SERVICE:	(630) 766-2112

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

ACUTE TOXICITY, ORAL (CATEGORY 4), H302
RESPIRATORY SENSITISATION (CATEGORY 1), H334
SKIN SENSITISATION (CATEGORY 1), H317
CARCINOGENICITY (CATEGORY 1B), H350
REPRODUCTIVE TOXICITY (CATEGORY 1B), H360

ACUTE AQUATIC TOXICITY (CATEGORY 1), H400
CHRONIC AQUATIC TOXICITY (CATEGORY 1), H410
FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE
SECTION 16.

**GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS
PICTOGRAM**



SIGNAL WORD

DANGER

HAZARD STATEMENT(S)

H302	HARMFUL IF SWALLOWED.
H317	MAY CAUSE AN ALLERGIC SKIN REACTION.
H334	MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED.
H350	MAY CAUSE CANCER.
H360	MAY DAMAGE FERTILITY OR THE UNBORN CHILD.
H410	VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

PRECAUTIONARY STATEMENT(S)

P201	OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
P202	DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD.
P261	AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.
P264	WASH SKIN THOROUGHLY AFTER HANDLING.
P270	DO NOT EAT, DRINK OR SMOKE WHEN USING THIS PRODUCT.
P272	CONTAMINATED WORK CLOTHING SHOULD NOT BE ALLOWED OUT OF THE WORKPLACE.
P273	AVOID RELEASE TO THE ENVIRONMENT.
P280	WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION
P285	IN CASE OF INADEQUATE VENTILATION WEAR RESPIRATORY PROTECTION.
P301 + P312 + P330	IF SWALLOWED: CALL A POISON CENTER OR DOCTOR/ PHYSICIAN IF YOU FEEL UNWELL. RINSE MOUTH.
P302 + P352	IF ON SKIN: WASH WITH PLENTY OF SOAP AND WATER.
P304 + P341	IF INHALED: IF BREATHING IS DIFFICULT, REMOVE VICTIM TO FRESH AIR AND KEEP AT REST IN A POSITION COMFORTABLE FOR BREATHING.
P308 + P313	IF EXPOSED OR CONCERNED: GET MEDICAL ADVICE/ ATTENTION.
P333 + P313	IF SKIN IRRITATION OR RASH OCCURS: GET MEDICAL ADVICE/ ATTENTION.
P363	WASH CONTAMINATED CLOTHING BEFORE REUSE.
P391	COLLECT SPILLAGE.
P405	STORE LOCKED UP.
P501	DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.

**HAZARDS NOT
OTHERWISE
CLASSIFIED (HNOC)
OR NOT COVERED
BY GHS**

NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: $\text{CoO}_4\text{S} \cdot x\text{H}_2\text{O}$

MW: 155.01

CAS-NO. 60459-08-7

PURITY: $\geq 20.8\%$ (Assay)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
Cobalt(II) sulfate hydrate	INCLUDED IN THE CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN (SVHC) ACCORDING TO REGULATION (EC) NO. 1907/2006 (REACH)	
	ACUTE TOX. 4; RESP. SENS. 1; SKIN SENS. 1; CARC. 1B; REPR. 1B; AQUATIC ACUTE 1; AQUATIC CHRONIC 1; H302, H317, H334, H350, H360, H410	$\leq 100\%$

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE. MOVE OUT OF DANGEROUS AREA.

IF INHALED IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.

IN CASE OF SKIN CONTACT WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.

IN CASE OF EYE CONTACT FLUSH EYES WITH WATER AS A PRECAUTION.

IF SWALLOWED	NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
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SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	SULPHUR OXIDES, COBALT/COBALT OXIDES
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ADVICE FOR FIREFIGHTERS	WEAR SELF CONTAINED BREATHING APPARATUS FOR FIRE FIGHTING IF NECESSARY.
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FURTHER INFORMATION	NO DATA AVAILABLE
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SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. EVACUATE PERSONNEL TO SAFE AREAS. AVOID BREATHING DUST.
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FOR PERSONAL PROTECTION SEE SECTION 8.

ENVIRONMENTAL PRECAUTIONS	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
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**METHODS AND
MATERIALS FOR
CONTAINMENT AND
CLEANING UP**

PICK UP AND ARRANGE DISPOSAL WITHOUT
CREATING DUST. SWEEP UP AND SHOVEL. KEEP IN
SUITABLE, CLOSED CONTAINERS FOR DISPOSAL

**REFERENCE TO OTHER
SECTIONS**

FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

**PRECAUTIONS FOR SAFE
HANDLING**

AVOID CONTACT WITH SKIN AND EYES. AVOID
FORMATION OF DUST AND AEROSOLS. FURTHER
PROCESSING OF SOLID MATERIALS MAY RESULT
IN THE FORMATION OF COMBUSTIBLE DUSTS. THE
POTENTIAL FOR COMBUSTIBLE DUST FORMATION
SHOULD BE TAKEN INTO CONSIDERATION BEFORE
ADDITIONAL PROCESSING OCCURS. PROVIDE
APPROPRIATE EXHAUST VENTILATION AT PLACES
WHERE DUST IS FORMED.

FOR PRECAUTIONS SEE SECTION 2.2.

**CONDITIONS FOR SAFE
STORAGE, INCLUDING
ANY
INCOMPATIBILITIES**

KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND
WELL-VENTILATED PLACE.

HYGROSCOPIC.
STORAGE CLASS (TRGS 510): NON-COMBUSTIBLE,
ACUTE TOXIC CAT.3 / TOXIC HAZARDOUS MATERIALS
OR HAZARDOUS MATERIALS CAUSING CHRONIC
EFFECTS

SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2
NO OTHER SPECIFIC USES ARE STIPULATED

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

COMPONENT	CAS-NO.	VALUE	CONTROL PARAMETERS	BASIS
Cobalt(II) sulfate hydrate	60459-08-7	TWA	0.020000 MG/M3	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)

	REMARKS	PULMONARY FUNCTION ASTHMA MYOCARDIAL EFFECTS SUBSTANCES FOR WHICH THERE IS A BIOLOGICAL EXPOSURE INDEX OR INDICES CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS VARIES		
		TWA	0.02 MG/M3	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)
		PULMONARY FUNCTION ASTHMA MYOCARDIAL EFFECTS SUBSTANCES FOR WHICH THERE IS A BIOLOGICAL EXPOSURE INDEX OR INDICES CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS VARIES		

BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS

COMPONENT	CAS-NO.	PARAMETERS	VALUE	BIOLOGICAL SPECIMEN	BASIS
Cobalt(II) sulfate hydrate	60459-08-7	COBALT	15 µG/L	Urine	ACGIH - BIOLOGICAL EXPOSURE INDICES (BEI)
	REMARKS	END OF SHIFT AT END OF WORKWEEK			

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL
HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE
BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

FACE SHIELD AND SAFETY GLASSES USE EQUIPMENT
FOR EYE PROTECTION TESTED AND APPROVED UNDER
APPROPRIATE GOVERNMENT STANDARDS SUCH AS
NIOSH (US) OR EN 166(EU).

SKIN PROTECTION

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED
PRIOR TO USE. USE PROPER GLOVE REMOVAL
TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER
SURFACE) TO AVOID SKIN CONTACT WITH THIS
PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER
USE IN ACCORDANCE WITH APPLICABLE LAWS AND
GOOD LABORATORY PRACTICES. WASH AND DRY
HANDS.

BODY PROTECTION

COMPLETE SUIT PROTECTING AGAINST CHEMICALS,
THE TYPE OF PROTECTIVE EQUIPMENT MUST BE
SELECTED ACCORDING TO THE CONCENTRATION AND
AMOUNT OF THE DANGEROUS SUBSTANCE AT THE
SPECIFIC WORKPLACE

**RESPIRATORY
PROTECTION**

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULL-FACE RESPIRATOR WITH MULTIPURPOSE COMBINATION (US) OR TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU)

**CONTROL OF
ENVIRONMENTAL
EXPOSURE**

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Red to rust brown granules or chunks
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	
FLASH POINT	
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	2.03 g/mL at 25 °C (Lit.)
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION TEMPERATURE	NO DATA AVAILABLE
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	STABLE UNDER RECOMMENDED STORAGE CONDITIONS.
POSSIBILITY OF HAZARDOUS REACTIONS	NO DATA AVAILABLE
CONDITIONS TO AVOID	AVOID MOISTURE
INCOMPATIBLE MATERIALS	STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS	OTHER DECOMPOSITION PRODUCTS - NO DATA AVAILABLE IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	NO DATA AVAILABLE INHALATION: NO DATA AVAILABLE DERMAL: NO DATA AVAILABLE NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	NO DATA AVAILABLE
SERIOUS EYE DAMAGE/EYE IRRITATION	NO DATA AVAILABLE
RESPIRATORY OR SKIN SENSITISATION	NO DATA AVAILABLE
GERM CELL MUTAGENICITY	NO DATA AVAILABLE
CARCINOGENICITY	
THIS IS OR CONTAINS A COMPONENT THAT HAS BEEN REPORTED TO BE CARCINOGENIC BASED ON ITS IARC, OSHA, ACGIH, NTP, OR EPA CLASSIFICATION. POSSIBLE HUMAN CARCINOGEN	
IARC:	2B - GROUP 2B: POSSIBLY CARCINOGENIC TO HUMANS (Cobalt(II) sulfate hydrate)

NTP:	REASONABLY ANTICIPATED TO BE A HUMAN CARCINOGEN (Cobalt(II) sulfate hydrate)
OSHA:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY OSHA.
REPRODUCTIVE TOXICITY	PRESUMED HUMAN REPRODUCTIVE TOXICANT
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE
ADDITIONAL INFORMATION	<p>RTECS: NOT AVAILABLE</p> <p>TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.</p> <p>STOMACH - IRREGULARITIES - BASED ON HUMAN EVIDENCE</p>

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY	NO DATA AVAILABLE
PERSISTENCE AND DEGRADABILITY	NO DATA AVAILABLE
BIOACCUMULATIVE POTENTIAL	NO DATA AVAILABLE
MOBILITY IN SOIL	NO DATA AVAILABLE
RESULTS OF PBT AND VPVB ASSESSMENT	PBT/V PVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT CONDUCTED
OTHER ADVERSE EFFECTS	AN ENVIRONMENTAL HAZARD CANNOT BE EXCLUDED IN THE EVENT OF UNPROFESSIONAL HANDLING OR DISPOSAL. VERY TOXIC TO AQUATIC LIFE.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT	OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL. DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
CONTAMINATED PACKAGING	DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
NOT DANGEROUS GOODS

IMDG

PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Cobalt(II) sulfate hydrate)
UN NUMBER:	3077
CLASS:	9
PACKING GROUP:	III
EMS-NO:	F-A, S-F
MARINE POLLUTANT:	YES

IATA

PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Cobalt(II) sulfate hydrate)
UN NUMBER:	3077
CLASS:	9
PACKING GROUP:	III

FURTHER INFORMATION

EHS-MARK REQUIRED (IMDG CODE 2.10.3) FOR SINGLE PACKAGINGS AND COMBINATION PACKAGINGS CONTAINING INNER PACKAGINGS WITH DANGEROUS GOODS > 5L FOR LIQUIDS OR > 5KG FOR SOLIDS.

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS SARA 302: NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS

SARA 302: THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313:

	CAS-NO.	REVISION DATE
Cobalt(II) sulfate hydrate	60459-08-7	07/17/2009

SARA 311/312 HAZARDS ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
Cobalt(II) sulfate hydrate	60459-08-7	07/17/2009

NEW JERSEY RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
Cobalt(II) sulfate hydrate	60459-08-7	07/17/2009

CALIFORNIA PROP. 65 COMPONENTS THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

	CAS-NO.	REVISION DATE
Cobalt(II) sulfate hydrate	60459-08-7	09/28/2007

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

ACUTE TOX	ACUTE TOXICITY
AQUATIC ACUTE	ACUTE AQUATIC TOXICITY
AQUATIC CHRONIC	CHRONIC AQUATIC TOXICITY
CARC.	CARCINOGENICITY
H302	HARMFUL IF SWALLOWED.
H317	MAY CAUSE AN ALLERGIC SKIN REACTION
H334	MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED
H350	MAY CAUSE CANCER.
H360	MAY DAMAGE FERTILITY OR THE UNBORN CHILD.
H400	VERY TOXIC TO AQUATIC LIFE.
H410	VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

HMIS RATING

HEALTH HAZARD:	2
CHRONIC HEALTH HAZARD:	
FLAMMABILITY:	0
PHYSICAL HAZARD	0

NFPA RATING

HEALTH HAZARD:	2
FIRE HAZARD:	0
REACTIVITY HAZARD:	0

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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VERSION:2.1.

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