

## MATERIAL SAFETY DATA SHEET

SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
IDENTIFICATION OF SUBSTANCE	VANADYL SULPHATE
SYNONYMS	VANADIUM OXIDE SULPHATE
NAME OF THE MANUFACTURER/ SUPPLIER	OMKAR SPECIALITY CHEMICALS LTD.
ADDRESS FOR CORRESPONDENCE	W-92 (A), MIDC, Badlapur (E), Dist.Thane – 421503 State: Maharashtra (India)
TEL.NO.:	91-251-2690651/2691602/2697319
FAX NO.:	91-251-2691572
EMAIL ID:	<a href="mailto:rishi@bom8.vsnl.net.in">rishi@bom8.vsnl.net.in</a> / <a href="mailto:omkarchem@vsnl.com">omkarchem@vsnl.com</a>

SECTION 2 : COMPOSITION AND INFORMATION ON INGREDIENT	
CHEMICAL NAME	VANADYL SULPHATE
CAS NO.	27774 – 13 – 6
EINECS / EL INCS NO.	248 – 652 – 7
RTECS NO.	YW 192500

SECTION 3 : HAZARD IDENTIFICATION	
APPEARANCE	BLUE SOLID
TARGET ORGANS	KIDNEYS , LIVER
POTENTIAL HEALTH EFFECTS	
EYE	MAY CAUSE IRRITATION & POSSIBLE DAMAGE
SKIN	MAY CAUSE IRRITATION & POSSIBLE BURNS, ESPECIALLY WHEN THE SKIN IS WET OR MOIST. MAY CAUSE SKIN LESIONS WHICH ARE CHARACTERIZED BY CRACKING OF THE SKIN & THE DEVELOPMENT OF SLOW-HEALING ULCERS.
INHALATION	MAY CAUSE IRRITATION TO RESPIRATORY TRACT WITH BURNING PAIN IN THE NOSE AND THROAT, COUGHING, WHEEZING, SHORTNESS OF BREATH AND PULMONARY EDEMA.
INGESTION	MAY CAUSE SEVERE GASTROINTESTINAL TRACT IRRITATION WITH NAUSEA, VOMITING, POSSIBLE BURNS. MAY CAUSE KIDNEYS AND LIVER DAMAGE. MAY CAUSE NEUROLOGICAL EFFECTS. MAY CAUSE GREENISH – BLACK TONGUE DIS COLOURATION DUE TO DEPOSITION OF VANADIUM SALTS. INGESTION OF LARGE AMOUNTS MAY CAUSE AN INCREASE IN BLOOD PRESSURE.

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SECTION 4 : FIRST-AID MEASURES	
EYE	IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR ATLEAST 15 MINUTES OCCASIONALLY LIFTING LOWER & UPPER EYE LIDS.
SKIN	IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER ATLEAST FOR 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHINGS & SHOES.
INHALATION	REMOVE TO FRESH AIR IMMEDIATELY. IF BREATHING IS DIFFICULT, GIVE OXYGEN. DO NOT USE MOUTH TO MOUTH RESSUSCITATION IF PERSON HAS INHALED THE SUBSTANCE INDUCE ARTIFICIAL RESPIRATION WITH THE AID OF APPROVED MEDICAL DEVICE.
INGESTION	IF SWALLOWED, WASHOUT MOUTH WITH PLENTY OF WATER PROVIDED A PERSON IS CONSCIOUS. DO NOT INDUCE VOMITING. IF PERSON IS CONSCIOUS, ALLOW HIM TO DRINK 2-4 CUPFULS OF WATER.

**ANTIDOTE** : THERE EXISTS SEVERAL CHELATION AGENTS. THE DETERMINATION OF THE USE SHOULD BE MADE ONLY BY QUALIFIED MEDICAL PERSONNEL.

ALWAYS SEEK MEDICAL AID. CONSULT NEAREST POISON CONTROL CENTRE OR PHYSICIAN WHO IS FAMILIAR WITH CHEMICALS AND ITS AFTER EFFECTS. ALL FIRST – AID PROCEDURES SHOULD BE PERIODICALLY REVIEWED BY AN EXPERIENCED PHYSICIAN.

## SECTION 5 : FIRE – FIGHTING MEASURES

GENERAL INFORMATION	AS IN ANY FIRE, WEAR A SELF-CONTAINED BREATHING APPARATUS (MSHA/NIOSH APPROVED OR EQUIVALENT) & FULLY PROTECTIVE GEAR. DURING A FIRE, TOXIC IRRATING GASES MAY BE GENERATED.
EXTINGUISHING MEDIA	CARBON DIOXIDE, DRY CHEMICAL POWDER, WATER SPRAY OR IT SHOULD BE APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

NFPA RATING : (ESTIMATED): HEALTH:2, FLAMMABILITY:0, INSTABILITY:0

SECTION 6 : ACCIDENTAL RESEASE MEASURES	
GENERAL INFORMATION	USE PROPER PERSONAL PROTECTIVE EQUIPMENTS AS INDICATED IN SECTION 8. PROVIDE VENTILATION.
SPILLS/LEAK	SWEEP-UP MATERIAL. PLACE INTO A SUITABLE LABELED DISPOSAL CONTAINER. AVOID GENERATING DUST. WASH SPILL SITE, AFTER MATERIAL PICK-UP IS COMPLETE. NOTIFY GOVERNMENT OCCUPATIONAL, HEALTH, SAFETY AND ENVIRONMETAL AUTHORITIES. REVIEW FEDERAL / STATE / LOCAL GOVERNMENT AUTHORITIES REQUIREMENT PRIOR TO DISPOSAL.

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SECTION 7 : HANDLING & STORAGE	
HANDLING	USE ONLY IN A WELL VENTILATED AREA. AVOID DUST GENERATION. USE ALL PROTECTIVE SAFETY EQUIPMENTS.
STORAGE	KEEP TIGHTLY CLOSED & STORE IN A COOL DRY PLACE. KEEP AWAY FROM HEAT, SPARK, OPEN FLAME, SOURCES OF IGNITION.

SECTION 8 : EXPOSURE CONTACT & PERSONAL PROTECTION
<p>EXPOSURE TO THIS MATERIAL CAN BE CONTROLLED IN MANY WAYS. THE MEASURES APPROPRIATE FOR A PARTICULAR WORKSITE DEPEND ON HOW THIS MATERIAL IS USED AND ON TO THE EXTENT OF EXPOSURE. THIS GENERAL INFORMATION CAN BE USED TO HELP DEVELOP SPECIFIC CONTROL MEASURES. ENSURE THAT, THE CONTROL SYSTEMS ARE PROPERLY DESIGNED AND MAINTAINED. AVOID PROLONGED OR REPEATED EXPOSURE. COMPLY WITH OCCUPATIONAL, ENVIRONMENTAL, FIRE AND OTHER APPLICABLE REGULATIONS.</p> <p>USE ALL PROTECTIVE SAFETY EQUIPMENTS SUCH AS SAFETY GOGGLES, OR EYE GLASS [AS PER OSHA'S EYE &amp; FACE PROTECTION REGULATIONS IN 29CFR 1910.133 OR EUROPEAN STANDARD EN166], PROPER CLOTHINGS, SAFETY SHOES, APPROVED RESPIRATORS THAT MEETS OSHS'S 29CFR 1910.134 &amp; ANSIZ88.2 REQUIREMENTS OR EUROPEAN STANDARD EN 149 REQUIREMENTS. ALL WAYS CLEAN USED SAFETY EQUIPMENT BEFORE REUSE.</p> <p>ENGINEERING METHODS TO CONTROL EXPOSURE TO WORK PLACE CHEMICALS ARE PREFERED. METHODS INCLUDE MECHANICAL [LOCAL EXHAUST] VENTILLATION, PROCESS – PERSONNEL ENCLOSURES AND CONTROL OF PROCESS CONDITIONS. ADMINISTRATIVE CONTROL MAY ALSO BE REQUIRED. SUPPLY SUFFICIENT REPLACEMENT AIR TO MAKE – UP FOR AIR REMOVED BY EXHAUST SYSTEM.</p> <p>FACILITIES SHOULD BE EQUIPPED WITH EYEWASH AND SAFETY SHOWER FACILITIES. APPROPRIATE EQUIPMENTS SHOULD BE AVAILABLE FOR USE IN EMERGENCIES SUCH AS SPILLS OR FIRE EXPOSURE LIMITS.</p>

## EXPOSURE LIMITS

CHEMICAL NAME	ACGIH	NIOSH	OSHA-FINAL PELS	OSHA-VACATED PELS
VANADYL SULPHATE	NONE LISTED	NONE LISTED	NONE LISTED	NONE LISTED

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## SECTION 9 : PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE	:	BLUE SOLID
MOLECULAR FORMULA	:	VOSO <sub>4</sub>
MOLECULAR WEIGHT	:	163.0
VAPOUR PRESSURE	:	NOT AVAILABLE
VAPOUR DENSITY	:	NOT AVAILABLE
EVAPORATION RATE	:	NOT AVAILABLE
DECOMPOSITION TEMPERATURE °C	:	NOT AVAILABLE
BOILING POINT °C	:	NOT AVAILABLE
SOLUBILITY	:	VERY SOLUBLE IN WATER
DENSITY	:	ABOUT 3.0

## SECTION 10 : STABILITY & REACTIVITY

CHEMICAL STABILITY	:	STABLE
CONDITION TO AVOID	:	SOURCES OF IGNITION, HEAT, SPARK, FLAME.
INCOMPATIBILITIES WITH	:	STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS	:	SULFUR OXIDES, VANADIUM OXIDE GAS.
HAZARDOUS POLYMERIZATION	:	WILL NOT OCCUR

## SECTION 11 : TOXICOLOGICAL INFORMATION

LD50 / LC50	:	SKIN-RABBIT = 4450mg/kg
CARCINOGENICITY	:	NOT LISTED BY ACGIH, IARC, NTP OR CA PROP 65
EPIDEMIOLOGY	:	MUTATION DATA HAS BEEN REPORTED
TERATOGENICITY	:	NO INFORMATION FOUND
REPRODUCTIVE EFFECTS	:	NO INFORMATION FOUND
NEUROTOXICITY	:	NO INFORMATION FOUND

SINCE THE MANNER IN WHICH EXPOSURE LIMITS ARE ESTABLISHED, INTERPRETED, IMPLEMENTED CAN VARY, OBTAIN DETAILED INFORMATION FROM APPROPRIATE AGENCIES IN EACH JURISDICTION.

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SECTION 12 : ECOLOGICAL INFORMATION

ECOTOXICITY : FISH : BLUEGILL/SUNFISH : 6mg / L ; 96H. NO DATA AVAILABLE

**ENVIRONMENTAL** : VANADIUM OCCURS IN WATER IN SEVERAL CHEMICAL FORMS OF WHICH THE DIOXY VANADIUM CATION VO(2+) & THE VANADATE ANION VO(-4) ARE READILY SOLUBLE. HOWEVER, THE MOBILITY OF THOSE IONS IN WATER IS PROBABLY LOW BECAUSE OF EASY ADSORPTION ON CLAY & PRECIPITATION WITH ORGANIC MATTER.

FOR MORE INFORMATION, SEE “HANDBOOK OF ENVIRONMENTAL FATE & EXPOSURE DATA” DO NOT ALLOW MATERIAL TO BE RELEASED TO THE ENVIRONMENT WITH OUT PROPER GOVERNMENTAL PERMITS.

SECTION : 13 DISPOSAL CONSIDERATIONS

WASTE GENERATORS MUST DETERMINE WHETHER DISCARDED CHEMICAL WASTE IN CLASSIFIED AS A HAZARDOUS WASTE. US – EPA GUIDE LINES FOR THE CLASSIFICATION DETERMINATION ARE LISTED IN 40 CFR PARTS 261.3. COLLECT ALL THE COASTE IN A WELL COVERED / LEAK PROOF / LABELED CONTAINERS AND REVIEW FEDERAL / STATE / LOCAL GOVERNMENT REQUIREMENT PRIOR TO DISPOSAL.

SECTION : 14 TRANSPORT INFORMATION

SHIPPING NAME	VANADIUM COMPOUND, N.O.S
UN NO	2931
HAZARD CLASS	6.1
PACKING GROUP	II
IMDG NO.	6276 – 1
EMS NO.	6.1 – 04
MFAG NO.	-

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## SECTION : 15 REGULATORY INFORMATION

### US FEDERAL

- \* TSCA : LISTED ON THE TSCA INVENTORY
- \* HEALTH & SAFETY REPORTING LIST : NONE OF THE CHEMICALS IN THIS PRODUCT ARE ON THE HEALTH & SAFETY REPORTING LIST.
- \* CHEMICAL TEST RULES : NONE OF THE CHEMICALS IN THIS PRODUCT ARE UNDER A CHEMICAL TEST RULE.

\* SECTION 12b : NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED UNDER TSCA SECTION 12b

\* TSCA SIGNIFICANT NEW USE RULE : NONE OF THE CHEMICALS IN THIS MATERIAL HAVE A SNUR UNDER TSCA

- \* CERCLA HAZARDOUS SUBSTANCE & CORRESPONDING RQS. : 1000lb FINAL RQ ; 454 kg FINAL RQ
- \* SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES : NONE OF THE CHEMICALS IN THIS PRODUCT HAVE A TPQ
- \* SARA CODES : ACUTE
- \* SECTION 313 : NO CHEMICALS ARE REPORTABLE UNDER SECTION 313
- \* CLEAN AIR ACT : THIS MATERIAL DOES NOT CONTAIN ANY HAZARDOUS AIR POLLUTANTS AND CLASS 1 & 2 OZONE DEPLETORS.
- \* CLEAN WATER ACT : PRODUCT IS LISTED AS A HAZARDOUS SUBSTANCE UNDER THE CWA NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED AS PRIORITY POLLUTANTS AND AS TOXIC POLLUTANTS UNDER THE CWA
- \* OSHA : NONE OF THE CHEMICALS IN THIS PRODUCT ARE CONSIDERED HIGHLY HAZARDOUS BY OSHA
- \* STATE : PRODUCT CAN BE FOUND ON THE FOLLOWING STATE RIGHT TO KNOW LISTS; CALIFORNIA, NJ , PN , MS
- \* CALIFORNIA PROP 65 : CALIFORNIA NO SIGNIFICANT RISK LEVEL: NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED
- \* EUROPEAN LABELING IN ACCORDANCE WITH EC DIRECTIVES : HAZARD SYMBOL – XN
- \* WGK (WATER DANGER / PROTECTION) : NO INFORMATION AVAILABLE
- \* CANADA : DSL/NDL – LISTED ON CANADA'S DSL LIST
- \* CANADA : WHMIS – HAS A WHMIS CLASSIFICATION OF D1A,D2B
- \* CANADIAN INGREDIENT DISCLOSE LIST : LISTED

PLEASE REFER TO SECTION 3 , 4 & 8 OF MSDA

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## SECTION : 16 ADDITIONAL INFORMATION

THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF MATERIAL BY A PERSON TRAINED IN CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS & DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION DEPENDING ON USAGE. ADEQUATE PROTECTIVE CLOTHING, INCLUDING EYE / FACE GUARDS, APPROVED RESPIRATORS MUST BE USED TO AVOID CONTACT WITH THE MATERIAL OR BREATHING CHEMICAL VAPOURS / FUMES.

EXPOSURE TO THIS PRODUCT MAY CAUSE ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, M/S. OMKAR SPECIALITY CHEMICALS LTD. CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH CHEMICALS OF MATERIALS. M/S. OMKAR SPECIALITY CHEMICALS LTD. WARRANTS THAT, THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE TEST REPORT.

M/S. OMKAR SPECIALITY CHEMICALS LTD. DISCLAIMS ANY OTHER WARRANTIES EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.

THE USER SHOULD RECOGNISE THAT, THIS PRODUCT CAN CAUSE SEVERE INJURY, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDED.

READ ALL PRECAUTIONARY INFORMATIONS.

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