



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

PRODUCT : CAPROLACTAM

SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER : GUJARAT STATE FERTILIZERS & CHEMICALS LIMITED
P.O.: FERTILIZER NAGAR, DIST.: VADODARA,
INDIA. PIN: 391 750.

PREPARED BY : SAFETY UNIT, GSFC LTD.

PREPARATION DATE : 30/07/1988, UPDATED ON 05/08/1994, 12/05/2005

PRODUCT NAME : CAPROLACTAM

PRODUCT CODE : CAS NO. 105-60-2

CHEMICAL FORMULA : $\text{HNCH}_2(\text{CH}_2)_4\text{CO}$

MOLECULAR WEIGHT : 113

CHEMICAL FAMILY : ORGANIC CHEMICAL

MATERIAL USE : TO PRODUCE NYLON-6. FOR MANUFACTURING OTHER
INDUSTRIAL PRODUCTS / USES.

SECTION 02: COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	EXPOSURE LEVELS	LD/50, ROUTE, SPECIES	LC/50, ROUTE, SPECIES
CAPROLACTAM @ 100%	5 PPM(TLV) 10 PPM(STEL)	1370 MG/KG ORAL-RAT	TCLO 100 PPM INHL-HMN

SECTION 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY

SKIN CONTACT : IRRITANT TO SKIN. CONTACT WITH HOT LIQUID WILL
BURN SKIN.

SKIN ABSORPTION : NA

EYE CONTACT : DUST CAUSES IRRITATION TO EYES. CONTACT WITH
HOT LIQUID WILL BURN EYES.

INHALATION : CAUSES COUGHING OR MILD IRRITATION TO MUCUS
MEMBRANE.

INHALATION, CHRONIC : NA

INGESTION : HARMFULL IF SWALLOWED.



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

EFFECTS OF ACUTE EXPOSURE	:	IRRITANT TO SKIN, EYES. INHALATION CAUSES COUGHING.
EFFECTS OF CHRONIC EXPOSURE	:	NA

SECTION 04: FIRST AID MEASURES

INSTRUCTIONS	:	
SKIN CONTACT	:	REMOVE ALL CONTAMINATED CLOTHINGS AND SHOES. WASH IMMEDIATELY WITH PLENTY OF WATER.
INHALATION	:	
INGESTION	:	IF SWALLOWED AND VICTIM IS CONSCIOUS, HAVE VICTIM DRINK WATER.
EYE CONTACT	:	RINSE WITH PLENTY OF WATER FOR 15 MINUTES HOLDING EYELIDS OPEN.
		ADMINISTER MEDICAL TREATMENT IMMEDIATELY IN ALL CASES.
NOTES TO PHYSICIAN	:	DIAGNOSTIC TEST: PIGMENTORY AND CARBOHYDRATE LEVER FUNCTION TESTS. (RISE OF UROBILINE IN URINE), ECG. SPECIAL HIGH RISK GROUPS: WOMEN, PREGNANT WOMEN.

SECTION 05: FIRE FIGHTING MEASURES

T.D.G. FLAM. CLASS	:	NOT LISTED
FLAMMABILITY	:	COMBUSTIBLE.
IF YES, UNDER WHICH CONDITIONS?	:	WHEN EXPOSED TO HEAT OR FLAME.
EXTINGUISHING MEDIA	:	USE WATER, DCP, FOAM, CARBON DIOXIDE.
SPECIAL PROCEDURES	:	KEEP COOL EXPOSED CONTAINERS WITH WATER. USE FULL BODY PROTECTION AND NIOSH APPROVED SELF CONTAINED B.A.SET.
FLASH POINT (C) METHOD	:	110 ⁰ C./230 ⁰ F.(C.C.) 125 ⁰ C./257 ⁰ F.(O.C.)
AUTO IGNITION TEMPERATURE	:	NOT PERTINENT
UPPER FLAMMABLE LIMIT (%BY VOL.)	:	-



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

LOWER FLAMMABLE LIMIT (%BY VOL.)	:	1.84
EXPLOSION DATA		
EXPLOSIVE POWER	:	NA
RATE OF BURNING	:	2.4 MM/MIN.
SENSITIVITY TO STATIC DISCHARGE	:	NA
SENSITIVITY TO IMPACT	:	STABLE.
UNUSUAL FIRE AND EXPLOSION HAZARDS :		POISONOUS GASES MAY BE PRODUCED IN FIRE.
HAZARDOUS COMBUSTION PRODUCT	:	EMITS TOXIC FUMES OF NO _x .

SECTION 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL	:	STOP DISCHARGE IF POSSIBLE TO DO SO. KEEP PEOPLE AWAY. ISOLATE AND REMOVE DISCHARGED MATERIAL. FLUSH SPILLED AREA WITH PLENTY OF WATER. NOTIFY LOCAL HEALTH AND POLLUTION CONTROL AGENCIES.
------------	---	---

SECTION 07: HANDLING AND STORAGE

HANDLING PROCEDURES AND EQUIPMENT	:	NO SPECIFIC HANDLING PROCEDURES / REQUIREMENTS.
STORAGE NEEDS	:	STORE IN HDPE BAGS IN A COOL, WELL VENTILATED AREA.

SECTION 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

GLOVES/ TYPE	:	USE PVC/RUBBER HANDGLOVES FOR HAND PROTECTION.
RESPIRATORY/TYPE	:	USE DUST RESPIRATOR, SELF CONTAINED BREATHING APPARATUS SET.
EYE/TYPE	:	USE CHEMICAL SAFETY GOGGLES.
FOOTWEAR/TYPE	:	USE PVC/RUBBER SHOES/GUMBOOTS.
CLOTHING/TYPE	:	USE PVC/RUBBER APROAN.
ENGINEERING CONTROLS	:	USE LOCAL EXHAUST VENTILATION.



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	:	SOLID .
ODOUR	:	MILD ODOUR.
ODOUR THRESHOLD	:	0.3 MG/M ³
VAPOUR PRESSURE (MM HG)	:	6 MM AT 120 °C.
VAPOUR DENSITY (AIR = 1)	:	3.9
EVAPORATION RATE	:	NA
BOILING POINT	:	268.5 °C.
PH	:	NEUTRAL.
SPECIFIC GRAVITY (WATER = 1)	:	1.05 (70% SOLUTION).
SOLUBILITY IN WATER (%W/W)	:	SINKS AND MIXES WITH WATER . 82 GRAMES/100 ML.
COEFFICIENT OF WATER/ OIL DIST	:	NA

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY	:	
YES	:	STABLE UNDER NORMAL CONDITIONS.
NO, WHICH CONDITION	:	
COMPATABILITY WITH OTHER SUBSTANCES	:	
YES	:	
NO, WHICH CONDITION	:	NO. STRONG OXIDIZING AGENTS, STRONG BASES, CHLORINATED HYDROCARBONS & NITRO COMPOUNDS.
CONDITIONS TO AVOID	:	EXTREME HEAT, MOISTURE.
REACTIVITY CONDITIONS?	:	NA
HAZARDOUS PRODUCTS OF DECOMPOSITION	:	NA
HAZARDOUS POLYMERIZAT- ION DECOMPOSITION	:	NA



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

SECTION 11: TOXICOLOGY INFORMATION

EXPOSURE LIMIT OF MATERIAL	:	5 PPM(TLV), 10 PPM(STEL)
LC 50 OF MATERIAL, SPECIES & ROUTE	:	TCLO 100 PPM (INHLM-HMN)
LD 50 OF MATERIAL, SPECIES & ROUTE	:	1370 MG/KG (ORAL-RAT)
CARCINOGENICITY OF MATERIAL	:	NA
REPRODUCTIVE EFFECTS	:	NA
IRRITANCY OF MATERIAL	:	IRRITANT TO SKIN, EYES & MUCUS MEMBRAN.
SENSITIZING CAPABILITY OF MATERIAL	:	NA
SYNERGISTIC MATERIALS	:	NA

SECTION 12: ECOLOGICAL CONSIDERATIONS

ENVIRONMENTAL TOXICITY INFORMATION	:	BIO DEGREDEABLE: YES. EFFECT OF LOW CONCENTRATIONS ON AQUATIC LIFE IS UNKNOWN. MAY BE DANGEROUS IF IT ENTERS WATERINTAKES. NOTIFY LOCAL HEALTH AND WILDLIFE OFFICIALS. NOTIFY OPERATORS OF NEARBY WATER INTAKES.
------------------------------------	---	---

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	:	SEND THE STREAM FOR BOD REDUCTION IN EFFLUENT TREATMENT PLANT.
----------------	---	--

SECTION 14: TRANSPORT INFORMATION

UN NUMBER	:	NOT LISTED.
T.D.G.CLASSIFICATION	:	NOT LISTED.
PACKING GROUP	:	NOT LISTED.
SPECIAL SHIPPING INSTRUCTIONS	:	TO BE PROTECTED FROM MOISTURE. STORAGE TEMPERATURE 75 °C.



Gujarat State Fertilizers & Chemicals Ltd.
P.O.: Fertilizernagar, 391750, Dist. Vadodara. ,GUJRAT, INDIA.

SECTION 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION : NA
CPR COMPLIANCE : NA

SECTION 16: OTHER INFORMATION / DISCLAIMER

DISASTER MANAGEMENT, ALLOW SPILLED HOT LIQUID TO SOLIDIFY SWEEPUP SPILLED SUBSTANCE, WASH AWAY REMAINDER WITH LARGE AMOUNT OF WATER. EXTINGUISH FIRE WITH WATER SPRAY AND DRY CHEMICAL POWDER.

SOURCE USED : DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS
BY N. IRVING SAX.
HAZARDOUS CHEMICALS DATA BOOK BY G. WEISS.

GSFC provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. A properly trained person using this product intends this document only as a guide to the appropriate precautionary handling of the material. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. GSFC MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, GSFC WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.