

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product name: NXR-1020 nanoimprint resist (thermal plastic)

Revision date: 08/05/2003

Supplier: Nanonex Corporation

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2. Composition

Proprietary.

3. HAZARDS IDENTIFICATION

Flammable. Harmful. Dangerous for environment. Harmful by inhalation and in contact with skin.

Irritating to skin and eyes. Avoid contact with skin and eyes. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Avoid release to the environment. Possible risk of impaired fertility. Possible risk of harm to the unborn child. Probable carcinogen. Don't breathe vapors.

Target organ (s): liver, kidneys, teratogen.

4. FIRST AID AND MEASURES

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

5. FIRE FIGHTING MEASURES

Extinguishing Media

Water spray, carbon dioxide, dry chemical powder or appropriate foam.

Special Firefighting Procedures

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosions Hazards

Flammable liquid.

Emit toxic fumes under fire conditions.

Vapor may travel considerable distance to source of ignition and flash back.

Container explosion can occur under fire conditions. In advanced or massive fires, the area should be

evacuated and the fire should be fought from a remote explosion-resistant location.

6. ACCIDENTAL RELEASE MEASURES

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Wear disposable coveralls and discard them after use.

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors.

Ventilate area and wash spill site after material pickup is complete.

Evacuate area. Shut off all sources of ignition.

7. HANDLING AND STORAGE

Handling

Keep away from sources of ignition.

Use only in a fume hood.

Storage

Keep container tightly closed in a cool, dry and well-ventilated area.

Storage Conditions

Keep away from heat, sparks, and open flame.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Safety shower and eye bath.

Use nonsparking tools.

Mechanical exhaust required.

Do not breathe vapor.

Avoid contact with eyes, skin and clothing.

Avoid prolonged or repeated exposure.

NOISH/MSHA-approved respirator.

Compatible chemical-resistant gloves.

Chemical safety goggles.

Wear long-sleeved clothing.

Wash thoroughly after handling.

Wash contaminated clothing before reuse.

Discard contaminated shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES OF SOLVENT

Physical Properties

Boiling point: 132 °C

Melting point: -45 °C

Flashpoint: 75 °F

Explosion limits in air:

Upper 7.1%

Lower 1.3 %

Autoignition temperature: 1178 °F

Vapor pressure: 11.8 mm, 25 °C

Solubility: ethanol, ethyl chloroform

Specific gravity: 1.107

Vapor density: 3.86

Odor threshold: 0.21 ppm

Swiss poison class: 3

10. STABILITY AND REACTIVITY

Stability

Stable.

Incompatibilities

Strong oxidizing agents, strong bases.

Hazardous combustion or decomposition products

Carbon monoxide, carbon dioxide, hydrogen chloride gas, nitrogen oxides.

Hazardous polymerization

Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Effects

May cause skin irritation.

Harmful if absorbed through the skin.

May cause eye irritation.

Harmful if inhaled.

Material may be irritating to mucous membranes and upper respiratory tract.

May be harmful if swallowed.

Exposure can cause incoordination.

Warning: Intolerance for alcohol can occur up to four days after exposure to one component, which is considered to be a potent liver toxin.

Chronic Effects

Target organ (s): liver, kidneys, central nervous system, thymus, spleen, bone marrow, lungs, testes, This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Possible risk of congenital malformation in the fetus.

Toxicity Data

ORL-RAT LD50:1110 MG/KG

SRTCAC 36 (1-4), 10, 1989

IHL-RAT	LC50:2965 PPM	NTIS**	OTS0521601
IPR-RAT	LD50:1655 MG/KG	FAATDF	5, 105, 1985
SCU-RAT	LD50:3800 MG/KG	ARZNAD	15, 618, 1965
IVN-RAT	LD50:2 GM/KG	ZEKBAI	69, 103, 1967
UNR-RAT	LD50:>3 GM/KG	ARZNAD	18, 645, 1968
ORL-MUS	LD50:2300 MG/KG	85GMAT	-, 34, 1982
IHL-MUS	LC50:9400 MG/M3/2H	TPKVAL	1, 54, 1961
IPR-MUS	LD50:515 MG/KG	PHMCAA	10, 172, 1968
SCU-MUS	LD50:4500 MG/KG	ARZNAD	15, 618, 1965
IVN-MUS	LD50:470 MG/KG	ARZNAD	15, 618, 1965
IMS-MUS	LD50:3900 MG/KG	ARZNAD	15, 618, 1965
IVN-DOG	LD50:470 MG/KG	ARZNAD	15, 618, 1965
IPR-CAT	LD50:500 MG/KG	BJIMAG	13, 51, 1956
ORL-RBT	LD50:2250 MG/KG	38MKAJ	2B, 3603, 1981
ORL-GPG	LD50:2250 MG/KG	85GMAT	-, 34, 1982
ORL-MAM	LD50:2300 MG/KG	GTPZAB	32 (10), 25, 1988
IHL-MAM	LC50:10 GM/M3	GTPZAB	32 (10), 25, 1988
UNR-MAM	LD50:2300 MG/KG	GISAAA	51 (5), 61, 1986
SKN-RBT	LD50:12600 UL/KG	UCDS**	6/11/1965
IPR-RBT	LD50:1 GM/KG	BJIMAG	13, 51, 1956
IVN-RBT	LD50:1800 MG/KG	ARZNAD	15, 618, 1965
IVN-GPG	LD50:1050 MG/KG	ARZNAD	15, 618, 1965

Target Organ Data

Behavioral (somnia) (sic)

Behavioral (muscle weakness)

Behavioral (tremor)

Behavioral (ataxia)

Liver (other changes)

Kidney, ureter, bladder (other changes in urine composition)

Endocrine (effect on menstrual cycle)

Blood (changes in cell count)

Paternal effects (spermatogenesis)

Maternal effects (other effects on female)

Effects on fertility (post-implantation mortality)

Effects on embryo or fetus (extra embryonic structures)

Effects on embryo or fetus (fetotoxicity)

Specific developmental abnormalities (body wall)

Specific developmental abnormalities (gastrointestinal system)
 Specific developmental abnormalities (musculoskeletal system)
 Specific developmental abnormalities (hepatobiliary system)
 Nutritional and gross metabolic (weight loss or decreased weight gain)
 Only selected registry of toxic effects of chemical substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

12. ECOLOGICAL INFORMATION

Data not yet available.

13. DISPOSAL CONSIDERATION

Contact a licensed professional waste disposal service to dispose of this material.
 Burn in a chemical incinerator equipped with an afterburner and scrubber. But exert extra care in igniting as this material is highly flammable.
 Observe all federal, state and local environmental regulations.

14. TRANSPORT INFORMATION

Contact Nanonex Corporation for transportation information.

15. REGULATORY INFORMATION

European Information

EC Index #: 602-033-00-1

Flammable

Harmful

Dangerous for the environment

R 10

Flammable

R 20

Possible risk of impaired fertility

R 63

Possible risk of harm to the unborn child

S 23, R 20/21

Harmful by inhalation and in contact with skin

R 51/53, R 36

Toxic

R 61

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S 24/25

Avoid contact with skin and eyes.

S 61

Irritating to eyes

S 45

Avoid release to the environment. Refer to special instructions/safety data sheets. In case of accident or if you feel unwell, seek medical advice immediately.

Reviews, Standards, and Regulations

OEL = MAK

ACGIH TLV-CONFIRMED ANIMAL CARCINOGEN	DTLVS* TLV/BEI,1999
ACGIH TLV-TWA 10 PPM	DTLVS* TLV/BEI,1999
IARC CANCER REVIEW: HUMAN LIMITED EVIDENCE	IMEMDT 47, 171, 1989
IARC CANCER REVIEW: ANIMAL INADEQUATE EVIDENCE	IMEMDT 47, 171, 1989
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE	IMEMDT 47, 545, 1989
IARC CANCER REVIEW: ANIMAL NO EVIDENCE	IMEMDT 47, 545, 1989
IARC CANCER REVIEW: GROUP 3	IMEMDT 47, 545, 1989
MSHA STANDARD-AIR:TWA 75 PPM (350 MG/M3)	DTLVS* 3,49,1971
OSHA PEL (GEN INDU):8H TWA 75 PPM (350 MG/M3)	CFRGBR 29,1910.1000,1994
OSHA PEL (CONSTRUC):8H TWA 75 PPM (350 MG/M3)	CFRGBR 29,1926.55,1994
OSHA PEL (SHIPYARD):8H TWA 75 PPM (350 MG/M3)	CFRGBR 29,1915.1000,1993
OSHA PEL (FED CONT):8H TWA 75 PPM (350 MG/M3)	CFRGBR 41,50-204.50,1994
OEL-ARAB REPUBLIC OF EGYPT: TWA 1 PPM, JAN1993	
OEL-AUSTRALIA: TWA 75 PPM (350 MG/M3), JAN1993	
OEL-AUSTRIA: MAK 50 PPM (230 MG/M3), JAN1999	
OEL-BELGIUM: TWA 75 PPM (345 MG/M3), JAN1993	
OEL-DENMARK: TWA 10 PPM (46 MG/M3), JAN1999	
OEL-FINLAND: TWA 50 PPM (230 MG/M3), STEL 75 PPM (345 MG/M3), JAN1999	
OEL-FRANCE: VME 10 PPM, JAN1999	
OEL-GERMANY: MAK 50 PPM (230 MG/M3), JAN1999	
OEL-INDIA: TWA 75 PPM (350 MG/M3), JAN1993	
OEL-JAPAN: OEL 10 PPM (46 MG/M3), JAN1999	
OEL-THE NETHERLANDS: MAC-TGG 10 PPM (46 MG/M3), JAN1999	
OEL-NORWAY: TWA 25 PPM (115 MG/M3), JAN1999	
OEL-POLAND: MAC(TWA) 50 MG/M3, STEL 150 MG/M3, JAN1999	
OEL-SWITZERLAND: MAK-W 50 PPM (230 MG/M3), KZG-W 100 PPM (460 MG/M3), JAN1999	
OEL-TURKEY: TWA 75 PPM (350 MG/M3), JAN1993	
OEL-UNITED KINGDOM: LTEL 50 PPM (230 MG/M3), JAN1993	
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;	
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV	



NOHS 1974: HZD 18190; NIS 36; TNF 1965; NOS 46; TNE 46734
NOES 1983: HZD 18190; NIS 24; TNF 912; NOS 35; TNE 18050; TFE 3881
EPA GENETOX PROGRAM 1988, NEGATIVE: SHE-CLONAL ASSAY; SPERM
MORPHOLOGY-MOUSE
EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO UDS IN RAT LIVER
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: MAMMALIAN MICRONUCLEUS
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE FEREAC
47,26992,82
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES ON EPA IRIS
DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NIOSH ANALYTICAL METHOD, 1994: HYDROCARBONS, HALOGENATED, 1003
NTP CARCINOGENESIS STUDIES (GAVAGE);SOME EVIDENCE:RAT
NTPTR* NTP-TR-261,1985
NTP CARCINOGENESIS STUDIES (GAVAGE);NO EVIDENCE:MOUSE
NTPTR* NTP-TR-261,1985

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer.

16. OTHER INFORMATION

The above information is believed to be correct (based on our present state of knowledge), but does not purport to be all inclusive and shall be used only as a guide. Nanonex shall not be held liable for any damage resulting from handling or from contact with the above product.