MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION
   Product name: NXR-1020 nanoimprint resist (thermal plastic)               Revision date: 08/05/2003
   Supplier: Nanonex Corporation
   1 Deer Park Drive, Suite O
   Monmouth Junction, NJ 08852
   Tel.: +1 732-355-1600      Fax.: +1 732-355-1608      Web: http://www.nanonex.com

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 power 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:
<table>
<thead>
<tr>
<th>Upper</th>
<th>7.1%</th>
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<tbody>
<tr>
<td>Lower</td>
<td>1.3 %</td>
</tr>
<tr>
<td>Autoignition temperature: 1178 °F</td>
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<tr>
<td>Vapor pressure: 11.8 mm, 25 °C</td>
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<tr>
<td>Solubility: ethanol, ethyl chloroform</td>
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<tr>
<td>Specific gravity: 1.107</td>
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<tr>
<td>Vapor density: 3.86</td>
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<td>Odor threshold: 0.21 ppm</td>
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<td>Swiss poison class: 3</td>
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### 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
### Target Organ Data

#### Behavioral (somnolence)

#### 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 bross 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 (SHIYARD): 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.