This Material Safety Data Sheet has been prepared to comply with the EC Directive and the OSHA Hazard Communication Standard.

**SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Name: Solvent 21  
MSDS Number: 72121T-03

**MANUFACTURER:**  
Company Name: Nissan Chemical Industries, LTD.  
Address: Display Material Department, Electronic Material Division, Chemical General Division;  
7-1, 3-chome, Kanda-Nishiki-cho Chiyoda-Ku, Tokyo Japan 101-0054

**EMERGENCY TELEPHONE NUMBER**: +81-3-3296-8050    Fax: +81-3-3296-8360

<table>
<thead>
<tr>
<th>Component</th>
<th>Chemical Name</th>
<th>CAS#</th>
<th>%</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>N-Methyl-2-Pyrrolidone</td>
<td>872-50-4</td>
<td>80</td>
<td>LD50 4g/kg</td>
</tr>
<tr>
<td>B</td>
<td>Butylcellosolve</td>
<td>111-76-2</td>
<td>20</td>
<td>TLD0 195ppm / 8hrs</td>
</tr>
</tbody>
</table>

**OSHA HAZARDOUS INGREDIENTS (29 CFR 1910.1200):**  
Component B is hazardous ingredients.

**SECTION 3: HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

Warning! Brown or pale yellow liquid with a sweet odor. Harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation. Affects central nervous system, blood and blood-forming organs, kidneys, liver and lymphoid system. Combustible liquid and vapor. May cause irritation to skin and respiratory tract.

**Potential Health Effects:**

Inhalation: Causes irritation to the respiratory tract. Symptoms may include sore throat, coughing, headache, nausea and shortness of breath.

Eye: Vapors are irritating and may produce immediate pain. May be absorbed through the skin with possible systemic effect.

Skin: May cause irritation with redness and pain. May be absorbed through the skin with possible systemic effects.

Ingestion: Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. Toxic! May cause systemic poisoning with symptoms paralleling those of inhalation.

Chronic Hazards: Not available.

Medical Conditions Aggravated by Exposure: Neural excitation and slight change in blood index are observed (N-methyl-2-pyrrolidone).
SECTION 4: FIRST AID MEASURES

Eye: Rinse thoroughly with plenty of water for at least 15 minutes, holding the eye lids open to be sure the material is washed out. Get immediate medical attention.

Skin: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation or symptoms of exposure develop. Launder clothing before re-use.

Inhalation: Remove victim to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Keep the victim calm and warm. Get immediate medical attention.

SECTION 5: FIRE AND EXPLOSION DATA

Flash Point: 203°F (95°C) Flammable Limits: LEL: 2.0 %
UEL: not available

Extinguishing Media: Carbon dioxide, dry chemicals, foam, water.

Special Fire Fighting Procedures: Wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water.

Unusual Fire Hazards: Toxic fumes (oxide of carbon and nitrogen) may be evolved upon exposure to heat or open flame.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill: Absorb spilled materials with vermiculite, sand, rag or other inert absorbing materials and open doors for ventilation.

SECTION 7: HANDLING AND STORAGE

Handling: Avoid breathing vapors, aerosols and mists. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use.

Storage: To maintain quality, seal the container tightly and store at room temperature

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits: OSHA permissible Limit(PEL):50 ppm. skin (Butylcellosolve)
ACGIH Threshold Limit Value(TLV):25 ppm. (TWA) skin. (Butylcellosolve)

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied
respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres. This compound possibly exists in both particulate and vapor phase. A dust/mist prefilter should be used for the particulate.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Chemical safety goggles recommended.

Other Protective Equipment: Impervious clothing is required to prevent skin contact and contamination of personal clothing. An eye wash facility and safety shower should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Brown or pale yellow liquid with a sweet odor.

pH: Not available
Specific Gravity: 1.02
Boiling Point: 340-399 °F (171 - 204°C)
Melting Point: < -9 °F (-23°C)
Vapor Pressure: Not available
Water Solubility: Soluble in any portion
Vapor Density: Not available
Evaporation Rate: Not available

SECTION 10: STABILITY AND REACTIVITY
Stability: Stable: X
Unstable: 
Incompatibility/Conditions to Avoid: Strong alkali or oxidizers.
Hazardous Decomposition Products: Oxide of carbon and nitrogen may be evolved when burning
Hazardous Polymerization: May Occur: X
Will not occur:

SECTION 11: TOXICOLOGICAL INFORMATION
N-Methyl-2-Pyrrolidone: Oral rat LD50: 7725 mg/kg
Butylcellosolve: Oral rat LD50: 470 mg/kg
Inhalation rat LC50: 450ppm/4H;
Skin rabbit LD50: 220 mg/kg;

SECTION 12: ECOLOGICAL INFORMATION
No ecotoxicity data is available for this product at this time.

SECTION 13: DISPOSAL INFORMATION
Put in closed containers and dispose of as chemical waste in accordance, with local, state or federal regulations.

SECTION 14: TRANSPORT INFORMATION
Hazardous Substance (49CFR172.101): Butylcellosolve
Reportable Quantity: N/A

SECTION 15: REGULATORY INFORMATION
TSCA STATUS: All components is on TSCA INVENTORY
CERCLA 103 Reportable Quantity: None
SARA TITLE III Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: n-Methyl-2-pyrrolidone CAS#872-50-4 80%
STATE REGULATIONS: California Proposition 65: This product contains the following substances known to the State of California to cause developmental toxicity (birth defects): n-Methyl-2-pyrrolidone

SECTION 16: OTHER INFORMATION
This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Nissan Chemical Industries Ltd. It relates only to the specific material designated herein, and
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