PLIOBOND® 2024 Contact Adhesive
(continued)

TYPICAL ADHESION PROPERTIES

<table>
<thead>
<tr>
<th>Test</th>
<th>Substrate</th>
<th>1 Day</th>
<th>3 Days</th>
<th>7 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peel Strength, psi, 77°F</td>
<td>Cotton/Cotton</td>
<td>33ᵇ</td>
<td>39ᵇ</td>
<td>39ᵇ</td>
</tr>
<tr>
<td></td>
<td>Cotton/Steel</td>
<td>11ᵇ</td>
<td>13ᵇ</td>
<td>13ᵇ</td>
</tr>
<tr>
<td></td>
<td>Cotton/Plywood</td>
<td>34ᵇ</td>
<td>16ᵃ</td>
<td>16ᵃ</td>
</tr>
<tr>
<td>Heat Performance ASTM D-816, °F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Time Test, minutes</td>
<td></td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application Temperature, °F</td>
<td></td>
<td>15-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cure Cycle</td>
<td></td>
<td>40-100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>72 hours at 77°F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ᵃ Substrate Failure
ᵇ Adhesive Failure

METHOD OF APPLICATION:
1. Remove dirt and foreign matter from surfaces of substrates.
2. Shake or stir adhesive before using.
3. Apply adhesive, 2-3 mils thick, to both substrates. Allow for absorption on porous substrates.
4. Allow substrates to dry for 8 to 10 minutes before assembling.
5. Assemble surfaces. Apply pressure to provide good adhesive contact.

NOTE: If adhesive is allowed to dry out before assembly, it can be reactivated by brushing surfaces with an organic solvent (methyl ethyl ketone or toluene) or heating surfaces to 160°F.

SPRAY APPLICATION: For spraying PLIOBOND 2024 contact adhesive, the following equipment is recommended:

- Spray Gun
  - Binks MBC
  - Devilbiss JGA
- Needle
  - FX
- Tip
  - FX
- Air Cap
  - 704
- Line Pressure, psi
  - 5
- Atomization Pressure, psi
  - 50-60

HANDLING: PLIOBOND 2024 contact adhesive contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

Ashland Chemical Company maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

Our Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Ashland Chemical products in your facilities.

RECOMMENDED STORAGE: When PLIOBOND 2024 contact adhesive is stored indoors, out of direct sunlight, and in the original, unopened container between 60°F and 80°F, the shelf life is six months. Always rotate stock.
1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

THE RUSCOE COMPANY
485 KENMORE BLVD
AKRON, OH 44301
330-253-8148

Emergency telephone number 800-424-9300
CHEMTREC (24 HOURS)

Product name CONTACT CEMENT - FLAMMABLE
Product code 571607
Product Use Description No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, light green

DANGER! Flammable Liquid, Moderate skin irritant, Severe eye irritant.

Potential Health Effects

Routes of Exposure
Inhalation, Skin absorption, Skin contact, Ingestion

Eye Contact
Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin Contact
Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Additional symptoms of skin contact may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects)

Ingestion
Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.
Inhalation

Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful.

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, kidney, central nervous system, auditory system, eye.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), temporary changes in mood and behavior, irregular heartbeat, and death.

Target Organs

Prolonged and repeated exposure to n-hexane may cause peripheral neuropathy by damaging peripheral nerve tissue (that of the arms and legs) and result in muscular weakness and loss of sensation. Prolonged and repeated inhalation of high levels of mixed isomers of hexane resulted in kidney damage in male rats. The effects observed are the same as those seen in male rats exposed to other hydrocarbons. The mechanism by which these chemicals cause the characteristic kidney toxicity is unique to the male rat and the kidney effects are not expected to occur in man. Prolonged intentional toluene abuse may lead to damage to many organ systems having effects on: central and peripheral nervous systems, vision, hearing, liver, kidneys, heart and blood. Such abuse has been associated with brain damage characterized by disturbances in gait, personality changes and loss of memory. Comparable central nervous system effects have not been shown to result from occupational exposure to toluene. Prolonged intentional toluene abuse may lead to hearing loss progressing to deafness. In addition, while noise is known to cause hearing loss in humans, it has been suggested that workers exposed to organic solvents, including toluene, along with noise may suffer greater hearing loss than would be expected from exposure to noise alone. Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: liver abnormalities, nasal damage, eye damage, kidney damage, brain damage, effects on hearing, testis damage, lung damage, central nervous system damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: visual impairment, kidney damage, central nervous system effects.
Carcinogenicity

This product may contain non-asbestos talc. Inhalation of non-asbestos talc has been shown to cause lung and adrenal cancer in female rats and adrenal gland cancer in male rats. It did not cause cancer in male or female mice similarly exposed. Talc is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive Hazard

Toluene may be harmful to the human fetus based on positive test results with laboratory animals. Case studies show that prolonged intentional abuse of toluene during pregnancy can cause birth defects in humans.

Other Information

No data

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC</td>
<td>64742-89-8</td>
<td>&gt;=30-&lt;40%</td>
</tr>
<tr>
<td>ACETONE</td>
<td>67-64-1</td>
<td>&gt;=20-&lt;30%</td>
</tr>
<tr>
<td>TOLUENE</td>
<td>108-88-3</td>
<td>&gt;=15-&lt;20%</td>
</tr>
<tr>
<td>2-CHLORO-1,3-BUTADIENE/METHACRYLIC ACID</td>
<td>25053-30-9</td>
<td>&gt;=10-&lt;15%</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eyes**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**Skin**

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

**Ingestion**

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a
physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**
If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

**Notes to Physician**
_Hazards:_ This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.
_Treatment:_ No information available.

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### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Water mist, carbon dioxide (CO2), dry chemical

**Hazardous Combustion Products**
May form; carbon dioxide and carbon monoxide, phenols, various hydrocarbons

**Precautions for Fire-Fighting**
Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

**Flammability Class for Flammable Liquids**
Flammable Liquid Class 1B

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**
For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum
transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental Precautions
No data

Methods for Cleaning Up
Absorb liquid on vermiculite, floor absorbent, or other absorbent material and transfer to hood.

7. HANDLING AND STORAGE

Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage
No data

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

<table>
<thead>
<tr>
<th>ACETONE</th>
<th>67-64-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>time weighted average 500 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>Short term exposure limit 750 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Recommended exposure limit (REL): 250 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Recommended exposure limit (REL): 590 mg/m3</td>
</tr>
<tr>
<td>OSHA Z1</td>
<td>Permissible exposure limit 1,000 ppm</td>
</tr>
<tr>
<td>OSHA Z1</td>
<td>Permissible exposure limit 2,400 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOLUENE</th>
<th>108-88-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH NIC</td>
<td>time weighted average 20 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>time weighted average 50 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Recommended exposure limit (REL): 100 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Recommended exposure limit 375 mg/m3</td>
</tr>
</tbody>
</table>
CONTACT CEMENT - FLAMMABLE

NIOSH
OSHA Z2
OSHA Z2
OSHA Z2

(REL):
Short term exposure limit
Short term exposure limit
time weighted average
Ceiling Limit Value:
Maximum concentration:
150 ppm
560 mg/m3
200 ppm
300 ppm
500 ppm

General Advice
These recommendations provide general guidance for handling this product.
Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure Controls
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Eye Protection
Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin and Body Protection
Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Respiratory Protection
If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state
Form
Colour
Odour
Boiling point/range
pH
Flash point

liquid
No data
light green
No data
133.0 °F / 56.1 °C@ 760 mmHg
No data
0 °F / -18 °C Seta closed cup
Evaporation rate
Explosion limits
Vapour pressure
Vapour density
Density
Solubility
Partition coefficient (n-octanol/water)
Autoignition temperature

1 Ethyl Ether
No data
140.0000 mmHg @ 68.00 °F / 20.00 °C
2.6
0.818 g/cm³ @ 77 °F / 25 °C
6.81 lb/gal @ 77 °F / 25 °C
No data
No data
No data

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to Avoid
Avoid contact with:

Incompatible Products
Avoid contact with: strong alkalis, strong mineral acids, strong oxidizing agents

Hazardous Decomposition Products
May form: carbon dioxide and carbon monoxide, phenols, various hydrocarbons

Hazardous Reactions
Product will not undergo hazardous polymerization.

Thermal Decomposition
No data

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity

SOLVENT NAPHTHA (PETROLEUM), LD 50 Rat: 8,000 mg/kg
LIGHT ALIPHATIC

ACETONE, LD 50 Rat: 5,800 mg/kg
12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Acute and Prolonged Toxicity to Fish
No data

Acute Toxicity to Aquatic Invertebrates
No data

Environmental Fate and Pathways
No data

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
This product contains a small amount of chromium which must be considered
during waste disposal in accordance with the Resource Conservation and Recovery Act
(RCRA). (D007). Destroy by liquid incineration in accordance with applicable
14. TRANSPORT INFORMATION

IMDG:
UN1133, ADHESIVES 3, II
IATA_P:
UN1133, Adhesives 3, II
IATA_C:
UN1133, Adhesives 3, II
CFR_ROAD:
UN1133, Adhesives 3, II
CFR_RAIL:
UN1133, Adhesives 3, II
CFR_INWTR:
UN1133, Adhesives 3, II
IMDG_INWTR:
UN1133, ADHESIVES 3, II
IMDG_ROAD:
UN1133, ADHESIVES 3, II
IMDG_RAIL:
UN1133, ADHESIVES 3, II

Dangerous goods descriptions may not reflect package size, quantity, end-use or region-specific exceptions that can be applied to shipments. Consult shipping documents for material-specific descriptions.

15. REGULATORY INFORMATION

California Prop. 65
WARNING! This product contains a chemical known in the State of California to cause cancer.
ETHYL BENZENE
BENZENE
QUARTZ / SAND
WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.
TOLUENE
BENZENE
Additional Regulations
US. Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

SARA Hazard Classification
- Fire Hazard
- Acute Health Hazard

SARA 313 Component(s)
- TOLUENE 108-88-3 16.0853%

OSHA Hazards
- Flammable Liquid
- Moderate skin irritant
- Severe eye irritant

HMIS
- Health 2
- Flammability 3
- Reactivity 0
- Other No data

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.