1 Identification

· Product identifier
  · Trade name: FA4844N
  · Article number: 14158

· Relevant identified uses of the substance or mixture. Adhesive

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    Royal Adhesives & Sealants, LLC
    Aerospace & Marine Inflatable Adhesives & Coatings Division
    48 Burgess Place
    Wayne, NJ 07470
    Information Phone Number: 973-694-0845
    Emergency Phone Number: 973-694-0845

· Information department: Environment protection department.

· Emergency telephone number: ChemTrec: UNITED STATES 1(800)424-9300 INTERNATIONAL 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS02 Flame
  Flam. Liq. 2 H225 Highly flammable liquid and vapor.

  GHS08 Health hazard
  Repr. 2 H361 Suspected of damaging fertility or the unborn child.
  STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
  Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

  GHS07
  Skin Irrit. 2 H315 Causes skin irritation.
  STOT SE 3 H336 May cause drowsiness or dizziness.
  Eye Irrit. 2B H320 Causes eye irritation.

· Label elements
  GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)
Trade name: FA4844N

- **Hazard pictograms**
  
  ![Hazard pictograms](image)

- **Signal word** Danger

- **Hazard statements**
  - Highly flammable liquid and vapor.
  - Causes skin irritation.
  - Causes eye irritation.
  - Suspected of damaging fertility or the unborn child.
  - May cause drowsiness or dizziness.
  - May cause damage to organs through prolonged or repeated exposure.
  - May be fatal if swallowed and enters airways.

- **Precautionary statements**
  - If medical advice is needed, have product container or label at hand.
  - Keep out of reach of children.
  - Read label before use.
  - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
  - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    
    ![NFPA ratings](image)
    
    Health = 2  
    Fire = 3  
    Reactivity = 0

  - **HMIS-ratings (scale 0 - 4)**
    
    ![HMIS-ratings](image)
    
    Health = *2  
    Fire = 3  
    Physical Hazard = 0

- **Other hazards**
  - Results of PBT and vPvB assessment
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

- **3 Composition/information on ingredients**
  
  - **Chemical characterization:** Mixtures
  - **Description:** Adhesive
  - **Dangerous components:**
    and Non-Dangerous Components:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Code</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>25-50%</td>
<td></td>
</tr>
<tr>
<td>n-Hexane</td>
<td>110-54-3</td>
<td>5-20%</td>
<td></td>
</tr>
</tbody>
</table>
4 First-aid measures

- Description of first aid measures
  - After inhalation:
    Supply fresh air or oxygen; call for doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact:
    Wipe excess from skin.
    Immediately wash with water and soap and rinse thoroughly.
  - After eye contact:
    Rinse opened eye for 20 minutes under running water. If eye becomes irritated, obtain medical treatment.
  - After swallowing:
    Rinse out mouth with water. Drink 1 - 2 glasses of water but DO NOT induce vomiting. Do not give liquids to a drowsy, convulsing or unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
    Call a doctor immediately.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed: No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    CO2, sand, extinguishing powder. Do not use water.
    Use fire fighting measures that suit the environment.
  - For safety reasons unsuitable extinguishing agents: Water
  - Special hazards arising from the substance or mixture: No further relevant information available.
  - Advice for firefighters
  - Protective equipment: Protective clothing and respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Environment: Wear protective equipment. Keep unprotected persons away.
  - Environmental precautions: Do not allow to enter sewers/surface or ground water.
  - Methods and material for containment and cleaning up:
    Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
    Dispose of contaminated material as waste in accordance with federal state and local regulations.
    Ensure adequate ventilation.
  - Reference to other sections
    - See Section 7 for information on safe handling.
    - See Section 8 for information on personal protection equipment.
7 Handling and storage

· Handling:
· Precautions for safe handling
  Avoid prolonged or repeated contact with skin.
  Avoid contact with eyes.
  Wash thoroughly after handling.
  Open containers in a well ventilated area and avoid breathing headspace vapors.
  Prevent formation of aerosols.
· Information about protection against explosions and fires:
  Keep container closed when not in use.
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
· Conditions for safe storage, including any incompatibilities
· Storage:
  · Requirements to be met by storerooms and receptacles: Store in a cool location away from direct heat.
  · Information about storage in one common storage facility: Store away from oxidizing agents.
  · Further information about storage conditions: Keep receptacle tightly sealed.
· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
· Control parameters
  · Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL Short-term</th>
<th>REL Short-term</th>
<th>TLV Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-88-3 toluene (25-50%)</td>
<td>Short-term value: C 300; 500* ppm</td>
<td>Short-term value: 560 mg/m³, 150 ppm</td>
<td>Long-term value: 75 mg/m³, 20 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 200 ppm</td>
<td>Long-term value: 375 mg/m³, 100 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*10-min peak per 8-hr shift</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REL Long-term value: 1800 mg/m³, 500 ppm</td>
<td>REL Long-term value: 176 mg/m³, 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-term value: 180 mg/m³, 50 ppm</td>
<td>Long-term value: 1050 mg/m³, 300 ppm</td>
<td>Skin; BEI</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 1050 mg/m³, 300 ppm</td>
<td>Long-term value: 344 mg/m³, 100 ppm</td>
<td></td>
</tr>
</tbody>
</table>
Ingredients with biological limit values:

108-88-3 toluene (25-50%)

<table>
<thead>
<tr>
<th>BEI</th>
<th>Medium</th>
<th>Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.02 mg/L</td>
<td>blood</td>
<td>prior to last shift of workweek</td>
<td>Toluene</td>
</tr>
<tr>
<td>0.03 mg/L</td>
<td>urine</td>
<td>end of shift</td>
<td>Toluene</td>
</tr>
<tr>
<td>0.3 mg/g creatinine</td>
<td>urine</td>
<td>end of shift</td>
<td>o-Cresol with hydrolysis (background)</td>
</tr>
</tbody>
</table>

110-54-3 n-hexane (5-20%)

<table>
<thead>
<tr>
<th>BEI</th>
<th>Medium</th>
<th>Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4 mg/L</td>
<td>urine</td>
<td>end of shift at end of workweek</td>
<td>2.5-Hexanedione without hydrolysis</td>
</tr>
</tbody>
</table>

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment (see listings below)

General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the skin.
- Avoid contact with the eyes and skin.

Breathing equipment:

Use approved respiratory protection equipment when airborne exposure is excessive. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer.

Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Material of gloves

- Nitrile rubber, NBR
- Chloroprene rubber, CR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
**Trade name: FA4844N**

- **Eye protection:** Safety glasses with side shields.

  Tightly sealed goggles

- **Body protection:** Protective work clothing

---

### 9 Physical and chemical properties

#### General Information

- **Appearance:**
  - Form: Liquid
  - Color: Not determined.
- **Odor:** Characteristic
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.

#### Change in condition

- **Melting point:** Undetermined.
- **Boiling point:** 69 °C (156 °F)
- **Flash point:** -26 °C (-15 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Ignition temperature:** 240 °C (464 °F)
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

#### Flammable limits:

- **Lower:** 1.2 Vol %
- **Upper:** 7.4 Vol %

#### Vapor pressure at 20 °C (68 °F):

- 160 hPa (120 mm Hg)

#### Specific gravity at 20 °C (68 °F):

- 0.859 g/cm³ (7.168 lbs/gal)
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.

#### Solubility in / Miscibility with Water:

- Not miscible or difficult to mix.

#### Partition coefficient (n-octanol/water):

- Not determined.

#### Viscosity:

- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

(Contd. on page 7)
Safety Data Sheet  
acc. to OSHA HCS

Trade name: FA4844N

- Solvent content: 
  - VOC (Per EPA 24) not available GMS/L 
  - Other information 
    - Pounds Per Gallon 7.17 
    - Lbs VOC/Gallon [less water. less exempts] 5.50 
    - Grams VOC/Liter [less water. less exempts] 658.70

10 Stability and reactivity

- Reactivity 
- Chemical stability 
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications. 
- Possibility of hazardous reactions not reactive, as supplied. 
- Conditions to avoid Heat, flames, sparks. 
- Incompatible materials: 
  - Reacts with oxidizing agents. 
  - Reacts with acids. 
- Hazardous decomposition products: 
  - Carbon monoxide and carbon dioxide 
  - Hydrogen chloride (HCl) 
  - Hydrocarbons

11 Toxicological information

- Information on toxicological effects 
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    108-88-3 toluene 
    - Oral LD50 5000 mg/kg (rat) 
    - Dermal LD50 12124 mg/kg (rabbit) 
    - Inhalative LC50/4 h 5320 mg/l (mouse) 
  110-82-7 cyclohexane 
  - Oral LD50 12705 mg/kg (rat)
- Primary irritant effect: 
  - on the skin: 
    - Skin irritant. 
    - Irritant to skin and mucous membranes. 
  - on the eye: 
    - Irritating effect. 
    - Vapors may be irritating to the eyes. 
  - Sensitization: No sensitizing effects known. 
- Additional toxicological information: 
  - The product shows the following dangers according to internally approved calculation methods for preparations: 
    - Irritant 
    - Carcinogenic. 
  - The product can cause inheritable damage.

(Contd. on page 8)
Trade name: FA4844N

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
- Ecotoxicological effects:
  - Remark: Toxic for fish.
- Additional ecological information:
  - General notes: At present there are no ecotoxicological assessments.
  - Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation: Must be specially treated adhering to official regulations.
- Uncleaned packagings
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number: UN1133
- DOT, ADR, IMDG, IATA
- UN proper shipping name
  - DOT: Adhesives
  - ADR: 1133 Adhesives, ENVIRONMENTALLY HAZARDOUS
  - IMDG: ADHESIVES (HEXANES, CYCLOHEXANE), MARINE POLLUTANT
  - IATA: ADHESIVES
Trade name: FA4844N

- **Transport hazard class(es)**
  - **DOT**
    - Class: 3
    - Label: Flammable liquids.
  - **ADR, IMDG**
    - Class: 3
    - Label: Flammable liquids
  - **IATA**
    - Class: 3
    - Label: Flammable liquids.

- **Packing group**
  - DOT, ADR, IMDG, IATA: II

- **Environmental hazards:**
  - Product contains environmentally hazardous substances: cyclohexane
  - Marine pollutant:
    - Yes
    - Symbol (fish and tree)
  - Special marking (ADR):
    - Symbol (fish and tree)

- **Special precautions for user**
  - Warning: Flammable liquids

- **Danger code (Kemler):** 33

- **EMS Number:** F-E,S-D

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - **DOT**
    - Remarks: Special marking with the symbol (fish and tree).
  - **UN "Model Regulation":** UN1133, Adhesives, ENVIRONMENTALLY HAZARDOUS, 3, II
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara
  - Section 355 (extremely hazardous substances):
    None of the ingredients is listed.
  - Section 313 (Specific toxic chemical listings):
    108-88-3 toluene
    110-54-3 n-hexane
    110-82-7 cyclohexane
  - TSCA (Toxic Substances Control Act):
    All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.
- Proposition 65
  - Chemicals known to cause cancer:
    None of the ingredients is listed.
  - Chemicals known to cause reproductive toxicity:
    108-88-3 toluene
- (DSL) Canada Domestic Substance List
  All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.
- Cancerogenity categories
  - EPA (Environmental Protection Agency)
    108-88-3 toluene II
    110-54-3 n-hexane II
    110-82-7 cyclohexane I
  - TLV (Threshold Limit Value established by ACGIH)
    108-88-3 toluene A4
  - MAK (German Maximum Workplace Concentration)
    None of the ingredients is listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.
- National regulations:
- Information about limitation of use:
  Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.
- Water hazard class: Water hazard class 3 (Self-assessment): extremely hazardous for water.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Although the information and recommendations set forth in this MSDS are presented in good faith and are believed to be correct as of the date of this MSDS, Royal Adhesives & Sealants makes no representations as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving and using it will make their own determination as to the suitability for their purpose prior to use. In no event will Royal
Adhesives & Sealants or any affiliate thereof be responsible for damages of any nature whatsoever resulting from the use or reliance on the information set forth in the MSDS.

- **Department issuing MSDS:** Environment protection department.
- **Creation Date:** 12/27/2013
- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent