Safety Data Sheet
acc. to OSHA HCS

Printing Date 01/11/2018 Revision Number 2 Revision Date 01/11/2018

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1 Identification

· **Product identifier**

· **Trade name: LA4123**

· **Article number:** 14712
· **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: Day or Night within USA and Canada: 1-800-424-9300.
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

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2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.

GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

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

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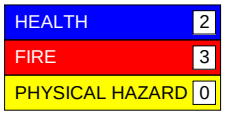
· **Hazard pictograms**

GHS02 GHS05 GHS07 GHS08

· **Signal word** Danger
· **Hazard statements**
Highly flammable liquid and vapor.
Causes serious eye damage.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
May cause respiratory irritation. May cause drowsiness or dizziness.
· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Immediately call a poison center/doctor.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2
Fire = 3
Physical Hazard = 0

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

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture

· **Hazardous components:**		
109-99-9	tetrahydrofuran	25-50%
78-93-3	methyl ethyl ketone	25-50%
108-94-1	cyclohexanone	2.5-10%
108-88-3	toluene	≤0.5%

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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:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for 20 minutes under running water. Call a Doctor immediately.
· **After swallowing:**
Rinse mouth with water.
Do not induce vomiting; immediately call for medical help.
· **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.

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5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray.
Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
Firefighters use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
· **Protective equipment:** Protective clothing and respiratory protective device.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation
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.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
109-99-9	tetrahydrofuran	100 ppm
78-93-3	methyl ethyl ketone	200 ppm
108-94-1	cyclohexanone	60 ppm
108-88-3	toluene	67 ppm

· **PAC-2:**		
109-99-9	tetrahydrofuran	500 ppm
78-93-3	methyl ethyl ketone	2700* ppm
108-94-1	cyclohexanone	830 ppm
108-88-3	toluene	560 ppm

· **PAC-3:**		
109-99-9	tetrahydrofuran	5000* ppm
78-93-3	methyl ethyl ketone	4000* ppm
108-94-1	cyclohexanone	5000* ppm
108-88-3	toluene	3700* ppm

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
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.
Store under inert gas.
· **Specific end use(s)** *No further relevant information available.*

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** *No further data; see item 7.*

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

109-99-9 tetrahydrofuran

PEL	Long-term value: 590 mg/m³, 200 ppm
REL	Short-term value: 735 mg/m³, 250 ppm Long-term value: 590 mg/m³, 200 ppm
TLV	Short-term value: 295 mg/m³, 100 ppm Long-term value: 147 mg/m³, 50 ppm Skin

78-93-3 methyl ethyl ketone

PEL	Long-term value: 590 mg/m³, 200 ppm
REL	Short-term value: 885 mg/m³, 300 ppm Long-term value: 590 mg/m³, 200 ppm
TLV	Short-term value: 885 mg/m³, 300 ppm Long-term value: 590 mg/m³, 200 ppm BEI

108-94-1 cyclohexanone

PEL	Long-term value: 200 mg/m³, 50 ppm
REL	Long-term value: 100 mg/m³, 25 ppm Skin
TLV	Long-term value: 50 mg/m³, 20 ppm Skin

108-88-3 toluene

PEL	Long-term value: 200 ppm Ceiling limit value: 300; 500* ppm *10-min peak per 8-hr shift
REL	Short-term value: 560 mg/m³, 150 ppm Long-term value: 375 mg/m³, 100 ppm
TLV	Long-term value: 75 mg/m³, 20 ppm BEI

· **Ingredients with biological limit values:**

109-99-9 tetrahydrofuran

BEI	2 mg/L Medium: urine Time: end of shift Parameter: Tetrahydrofuran

78-93-3 methyl ethyl ketone

BEI	2 mg/L Medium: urine Time: end of shift Parameter: MEK

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108-94-1 cyclohexanone	
BEI	80 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 1.2-Cyclohexanediol with hydrolysis (nonspecific, semi-quantitative) 8 mg/L Medium: urine Time: end of shift Parameter: Cyclohexanol with hydrolysis (nonspecific, semi-quantitative)
108-88-3 toluene	
BEI	0.02 mg/L Medium: blood Time: prior to last shift of workweek Parameter: Toluene 0.03 mg/L Medium: urine Time: end of shift Parameter: Toluene 0.3 mg/g creatinine Medium: urine Time: end of shift Parameter: o-Cresol with hydrolysis (background)

· **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.
Avoid contact with the eyes.
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.

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· **Eye protection:**

Tightly sealed goggles

Use full face shield over protective eye wear when there is a risk of a splash.

· **Body protection:** *Protective work clothing*

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9 Physical and chemical properties

· **Information on basic 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:	*65 °C (149 °F)*
· **Flash point:**	*-21 °C (-5.8 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*230 °C (446 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*May form explosive peroxides.*
· **Flammable limits:**	
Lower:	*1.5 Vol %*
Upper:	*12.0 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*200 hPa (150 mm Hg)*
· **Specific gravity at 20 °C (68 °F):**	*0.887 g/cm³ (7.40202 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor 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.*
· **Solvent content:**	
Organic solvents:	*Not available*

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Solids content:	Not available.
· **Other information**	Pounds Per Gallon 7.40 Lbs VOC/Gallon [less water. less exempts] 6.65 Grams VOC/Liter [less water. less exempts] 796.79

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10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **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.
When exposed to air, organic peroxides may develop.
· **Incompatible materials:**
Reacts with oxidizing agents.
Reacts with acids.
Reacts with alkalis (bases)
reducing agents.
Copper and copper alloys.
· **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
109-99-9 tetrahydrofuran		
Oral	LD50	2,500 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** May irritate the skin.
· **on the eye:**
Causes serious eye damage
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 categories**

· **IARC (International Agency for Research on Cancer)**		
108-94-1	cyclohexanone	3
108-88-3	toluene	3

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

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· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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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.
· **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.

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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.

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14 Transport information

· **UN-Number**
· **DOT, IMDG, IATA** UN1133

· **UN proper shipping name**
· **DOT** Adhesives
· **IMDG, IATA** ADHESIVES

· **Transport hazard class(es)**

· **DOT**

· **Class** 3 Flammable liquids
· **Label** 3

· **IMDG, IATA**

· **Class** 3 Flammable liquids

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· **Label**	3
· **Packing group** · **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user** · **Danger code (Kemler):** · **EMS Number:**	Warning: Flammable liquids 33 F-E,S-D
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	UN1133, Adhesives, 3, II

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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

· **TSCA (Toxic Substances Control Act):**
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

· **TSCA new (21st Century Act) (Substances not listed)**
· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

108-88-3	toluene

· **(DSL) Canada Dosmestic Substance List**
All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.

· **New Jersey Right-to-Know List:**

109-99-9	tetrahydrofuran
78-93-3	methyl ethyl ketone
108-94-1	cyclohexanone
108-88-3	toluene

· **New Jersey Special Hazardous Substance List:**

109-99-9	tetrahydrofuran	F3, R1
78-93-3	methyl ethyl ketone	F3
108-88-3	toluene	TE, F3

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· **Pennsylvania Right-to-Know List:**	
109-99-9	tetrahydrofuran
78-93-3	methyl ethyl ketone
108-94-1	cyclohexanone
108-88-3	toluene

· **Pennsylvania Special Hazardous Substance List:**		
109-99-9	tetrahydrofuran	E
78-93-3	methyl ethyl ketone	E
108-94-1	cyclohexanone	E
108-88-3	toluene	E

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**		
109-99-9	tetrahydrofuran	SC
78-93-3	methyl ethyl ketone	I
108-88-3	toluene	II

· **TLV (Threshold Limit Value established by ACGIH)**		
109-99-9	tetrahydrofuran	A3
108-94-1	cyclohexanone	A3
108-88-3	toluene	A4

· **MAK (German Maximum Workplace Concentration)**		
109-99-9	tetrahydrofuran	4
108-94-1	cyclohexanone	3B

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **National regulations:**

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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16 Other information

Although the information and recommendations set forth in this SDS are presented in good faith and are believed to be correct as of the date of this SDS, 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 SDS.

· **Department issuing SDS:** Environment protection department.
· **Creation Date:** 01/11/2018
· **Date of preparation / last revision** 01/11/2018 / 1
· **Abbreviations and acronyms:**
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)

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NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3