Implementation: 2010-06-15
Revision: 2012-12-1

MATERIAL SAFETY DATA SHEET

1. Product and manufacturer identity

Product:	ESLON Adhesive No.100S
Manufacturer:	Sekisui Chemical Co., Ltd.
Address:	Toranomon 2-3-17, Minato-ku, Tokyo 105-8450
Responsible section:	Urban Infrastructure & Environmental Products Company Pipe Systems & Building Materials Division
Telephone:	03-5521-0833
Urgent telephone:	03-5521-0833
Fax:	03-5521-0837
Urgent contact:	same as above
Application & restriction	Adhesive for rigid PVC piping system Other applications are prohibited.
Document number:	#100S

2. Summary of hazards

GHS Classification

Physical & chemical hazards:	Explosives	Not applicable
hazards:	Combustible/inflammable gases	Not applicable
	Combustible/inflammable aerosols	Not applicable
	Oxidizing gases	Not applicable
	High-pressure gases	Not applicable
	Inflammable liquids	Class 2
	Combustible solids	Not applicable
	Autoreactive chemicals	Not applicable
	Autoignition liquids	Off Classes
	Autoignition solids	Not applicable
	Auto-exothermic reaction	Not classifiable
	Water-reactive combustible	Not applicable
	Oxidizing liquids	Not applicable
	Oxidizing solids	Not applicable
	Organic peroxides	Not applicable
	Metal-corrosive substances	Off Classes
Health hazards:	Acute toxicity (oral)	Class 4
	Acute toxicity (transdermal)	Class 4
	Acute toxicity (gas inhalation)	Not applicable
	Acute toxicity (vapor inhalation)	Class 4
	Acute toxicity (dust/mist	Not classifiable
	Dermal erosion or irritation	Class 2
	Caustic injury or irritation to eye	Class 2A
	Respiratory organ sensitization	Not classifiable
	Skin sensitization	Not classifiable
	Mutanogenicity of generative cells	Class 2
	Carcinogenicity	Class 2
	Genotoxicity	Class 2
	Target organs & whole body toxicity (single exposure)	Class 1 (Liver, spleen, central nerve system) Class 2(Lung, kidney, nerve system) Class 3 (anesthesia action)
	Target organs & whole body toxicity (multiple exposure)	Class 1 (Kidndy, liver, central & peripheral nerve systems)
	Respiratory affection by inhalation	Off Classes
Environmental hazards:	Acute harm to waterborne environment	Off Classes
	Chronic harm to waterborne environment	Off Classes

Sign or symbol:

Warning word: Danger

Hazard information:
Highly inflammable liquid and vapor
Hazardous if swallowd
Hazardous if attached to skin
Hazardous if inhaled
Skin irritation
Caustic eye irritation
Suspected possible cause of genetic disorder
Suspected possible cause of cancer
Suspected possible hazard to generative function or embryo
Hazards to central nerve system, spleen and liver
Possible hazard to lung, kidney and nerve system
May cause drowsiness or dizziness
Hazards to liver, kidney, ceentral and peripheral nerve systems, by elongated or repeated exposure

Description of precaution:
The product may cause skin affection if attached to skin or cause addiction if its
Provide local ventilation facility in the work place.
Do not spill the adhesive when taking out of or returning to the container.
Avoid skin contact during handling and wear, as needed, gas mask, aerated mask, gloves, protective glasses, etc.
Wash hands and gargle sufficiently after handling.
Close the cap of container tightly and store it in a cool, dark space.

If the adhesive attaches to skin, wipe the locla spot immediately and wash well using soap. If itch or inflamation is felt, seek physician's counsel.

In case the adhesive enters in eye or in case drowsiness is caused by inhalation or erroneous swallow is felt, immediately seek physicians councel.

Do not use the adhesive near fire.
Never use the adhesive for other purposes than intended.

3. Composition and component information

Nature of composition: Mixture
Chemical or common name: Adhesive, containing vinyl chloride-vinyl acetate copolymer

Component	Content	CAS Number	Publication nr. in 'Gazzet' (Chem Exam Law / Labor S & H L.aw)	Others
Cyclohexanone	35 to 45 %	108-94-1	(3)-2376	
Tetrahydrofuran	30 to 40 %	109-99-9	(5)-53	
Methyl ethyl ketone	5 to 15 %	78-93-3	(2)-542	
Resin (CPVC.)	10 to 20 %	68648-82-8	(6)-75	
Tin compound	0.1 to 0.9 %	68109-88-6	(2)-3019	made in Japan
		15571-58-1	(2)-2307	made in Taiwan

4. First aid

If vapor is inhaled:
Take the affected person to a clean-air space and give him rest in a easy-breathing pose.
Seek physician's counsel as may be needed.

If attached to skin:
Wash the local skin immediately.
Take off the contaminated clothings for cleaning.
Seek physicians counsel if he suffers from irritation or drowsiness.

If gets in eye:
Thoroughly wash the eye with clean water for a several minutes. Remove contact lens if easily removable. Continue washing after removal.

Seek physician's counsel.

If swallowed:
Immediately wash the mouth with water.
Immedidiately seek physician's counsel.
Do not compel him to vomit.

Anticipated acute & chronic symptoms:
Irritation to respiratory organs, cough and gasp, when inhaled.
Irritation to digestive organs, boke, vomit and diarrhea, when swallowed.
Skin irritation, defatting, eye irritation, reddening and ache, when contacted.
Anesthesia, headache, drowsiness, restricted vision, vomit, diarrhea and loss of conciousness, when over-exposed to vapor.

Protection of first-aid provider:
First-aid provider should use protective wears such as organic solvent mask, when the circumstances require.

Special note to physician:
No information

5. Fire-fighting process

Extinguishing agents:
Carbon dioxide, powder agent, foam agent

Prohibited extinguishing agent:
Water flux

Specific hazards:
Fire may cause to generate irritant, toxic or erosive gas.
Easily flammable. It will readily be ignited by heat, spark or flame.
Heating of container may cause explosion.
Easily inflammable liquid and vapor.

Proper extinguishing method:
Remove surrounding combustibles and use extinguishing agents.
Use foam agent to choke a large scale fire.
Spray water over the neighborhood to cool and prevent fire spread.
Fight against fire standing to its windward as much as possible and wear breathing aid if necessary.

6. Actions for leakage

Health hazard precaution, protective wear and first-aid
Workers should use protective wears (See Chapter 8) to prevent contact with the spilt adhesive and inhalation of its vapor.
Rope off the crowd from the leak spot.
Work from the windward and evacuate the leeward crowd.
In case of indoor leakage, ventilate as much as possible until the cleaning is completed.

Environmental hazard precaution:
Prevent flow out to river, etc. so as not to badly affect the environment.

Recovery and neutralization:
For small scale leakage, use absorbent (sawdust, dirt, sand, waste rug) to remove most of the spill and wipe off the rest using waste rug.
For large scale leakage, build bank around the spill and lead the liquid to a safer place for recovery.

Prevention of secondary casualty:
Quickly remove all the combustibles from around the leak spot and provide extinguishers ready for use.

7. Precaution for handling and storage

Handling

Technical measures:
Use protective wears if inhalation or skin contact is foreseen.
Fire ban.

Local & total ventilation:
Handling work must be practiced in a room where local or total ventilation facility is functioning.

Safe handling:
Ban of high temperature substance, sparking and fire at nearby points.
Prohibition of eating, drinking and smoking while the product is used.
Wash hands well after handling.
Avoid contact of the product with eye, skin and clothing.
Do not inhale vapor, mist and spray of the product.
Handle it only after reading and understanding all the precaultions.
Use the product only in a well ventilated room or outdoors.

Storage

Storing conditions:
Store in a remote room from heat, sparks and naked flame. No smoking in the storage room.
Store in a cool, ventilated room.
Lock the storage room.

8. Control of human exposure and protective measures

Facility measures:
Local ventilation of closed work room or total proper ventilation to prevent vapor inhalation.

	Cyclohexanone	Tetrahydrofuran	Methyl ethyl ketone
Control concentration:	20 ppm	50 ppm	200 ppm
Permissible concentration (Exposure limit, Biological exposure guide line)			
Ind. Hygieiological Soc. (2005 issue)	25 ppm	200 ppm	200 ppm
ACGIH (2005 issue) TLV-TWA	25 ppm	50 ppm	200 ppm

Protective wears:

Respiratory protection:
Organic gas mask

Hand protection:
Impermeable gloves

Eye protection:
Solvent-resistant goggles

Skin and body protection:
long-sleeve fatigue uniform

Hygienic measures:
Wash hands well after handlilng.

9. Physical and chemical properties

Physical state, form, color:
Colorless transparent liquid

Odor:
Characteristic stimulative odor

pH:
Not applicable

Bp, initial bp & boiling range
65.4℃ (bp)

Flash point:
−17℃ (Closed Method)

Specific gravity (density):
0.89 to 0.99

Autoignition point:
320℃

Viscosity:
c. 450 mPa-s

10. Stability and reactivity

Stability:
Stable under normal conditions and handling.

Possibility of hazardous reaction:
Vigorously reacts with strong oxidizing agents and ignites.

Prohibitive conditions:
Heat

Prohibitive contact:
With oxidizing agent

Hazardous decomposed substances:
Generates carbon monoxide and dioxide by combustion.

11. Health hazard information

Acute toxicity:

(Appended Table)

	Content	Acute toxicity (oral)	Acute toxicity (transdermal)	Acute toxicity (gas inhalation)	Acute toxicity (vapor inhalation)	Acute toxicity (mist inhalation)
Cyclohexanone	35 to 45 %	Class 4 (1544mg/kg)	Class 3 (947mg/kg)	Not applicable	Class 3 (2450ppm)	Off Classes (8000ppm)
Tetrahydro-furan	30 to 40 %	Class 4 (1851mg/kg)	Not classifiable	Not applicable	Off Classes (21000ppm)	Not classifiable
Methyl ethyl ketone	5 to 15 %	Class 5 (2483mg/kg)	Off Classes (＞5000mg/kg)	Not applicable	Class 5 (11700ppm)	Not classifiable
Resin (CPVC.)	10 to 20 %	Not classifiable	Not classifiable	Not classifiable	Not classifiable	Not classifiable

Acute toxicity (oral):

The product contains substances of acute toxicity (oral) of Classes indicated in Appended Table. The dose is calculated for the mixture (the product) to be ATEmix=1746 mg/kg.

The product, as a mixture, falls in Class 4 (Hazardous if swallowed).

Acute toxicity (transdermal):

The product contains substances of acute toxicity (transdermal) of Classes indicated in Appended Table. The dose is calculated for the mixture (the product) to be ATEmix=1139 mg/kg.

The product, as a mixture, falls in Class 4 (Hazardous if contacted to skin).

Acute toxicity (vapor inhalation):

The product contains substances of acute toxicity (vapor inhalation) of Classes indicated in Appended Table. The dose is calculated for the mixture (the product) to be ATEmix=4646 ppm.

The product, as a mixture, falls in Class 4 (Hazardous if the vapor is inhaled).

Skin erosion/irritation:

The product contains skin-irritating substances of the following Classes:
Class 2: Cyclohexanone (35 to 45 %), tetrahydrofuran (30 to 40 %), methyl ethyl ketone (5 to 15 %).
The product, as a mixture, falls in Class 2 (Skin irritation).

Caustic eye injury/eye irritation:

The product contains caustically injuring and irritating substances of the following Classes:
Class 2A: Cyclohexanone (35 to 45 %), tetrahydrofuran (30 to 40 %),
Class 2B: Methyethylketone (5 to 15 %).
The product, as a mixture, falls in Class 2 (Strong eye irritation).

Respiratory organ sensitization or skin sensitization:

Respiratory organ sensitization: No available data.
Skin sensitization: No available data.

Mutanogenicity of generative cells

The product contains mutanogenicity substances of the following Class:
Class 2: Cyclohexanone (35 to 45 %).
The product, as a mixture, falls in Class 2 (Suspected possible cause of genetic disorder).

Carcinogenicity

The product contains carcinogenic substances of the following Class:
Class 2: Cyclohexanone (35 to 45 %).

The product, as a mixture, falls in Class 2 (Suspected possible cause of cancer).

Genotoxicity:

The product contains genotoxic substances of the following Class:
Class 2: Cyclohexanone (35 to 45 %).
The product, as a mixture, falls in Class 2 (Suspected possible hazard to generative function or embryo).

Target organs & whole body toxicity (single exposure):

The product contains single-exposure toxic substances of the following Classes:

Cyclohexanone (35～45%)＞1%, Class 1 (Liver, spleen, central nerve system), Class 2 (Lung) and Class 3 (Anesthesia, bronchial irritation),
Tetrahydrofuran(30～40%)＞1%, Class 2 (Nerve system) and Class 3 (Bronchial irritation),
Methylethylketone (5～15%)＞1%, Class 1 (Central nerve system), Class 2 (Kidney) and Class 3 (Bronchial stimulation).
The product, as a mixture, falls in Class 1 (Affection to liver, spleen, central nerve system), Class 2 (Possible affection to lung, kidney, nerve system) and Class 3 (Possible drowsiness or dizziness).

Target organs & whole body toxicity (multiple exposure):

The product contains multiple-exposure toxic substances of the following Classes:
Cyclohexanone (35～45%)＞1%, Class 1 (Kidney, liver, central nerve),
Tetrahydrofuran (30～40%)＞1% Class 1 (Kidney, liver, nerve system),

Methyethylketone (5～15%)＞1%, Class 1 (Central and peripheral nerve systems).

The product, as a mixture, falls in Class 1 (Long term or multiple exposure affection to kidney, liver, central & peripheral nerve systems).

Respiratory affect by inhalation: The product contains more than 10% in total of respiratory-hamful substances of the following Class, however, the kinematic viscosity at 40℃ is more than 14mm2/s:
Class 2: Cyclohexanone (35 to 45 %), tetrahydrofuran (30 to 40 %), metylethylkenone (5 to 15 %).
The product, as a mixture, falls off Classes.

12. Environmental hazards

Acute harm to waterborne environment: Off Classes
Chronic harm to waterborne environment: Off Classes

13.Precaution for disposal

Residual & waste: In the disposal of residual and other wastes, observe the relevant laws /regulations and local government rules.
Users of the product should contract with the local government or licensed 'Industrial Waste Processors' for disposal of waste.
It is important to let the contractor know well of fire and health hazzards of the product, prior to disposal.

Contaminated containers & packages: Clean the containers for reuse or dispose them properly in accordance with relevant regulations and local government rules.
Completely empty containers prior to disposal.

14. Precaution for transportation

Domestic control:

Onshore control info. Observe the Fire Defence Law.
Offshore control info. Observe the Marine Vessel Safety Law.
Air cargo control info. Observe the Aviation Law.
UN number: 1133 (Adhesive, containing inflammable liquid)
UN classification: Class 3 (inflammable liquid)

Special safety measure: Observe the Fire Defence Law.
On-board containers of hazardous material must be piled firmly and orderly to avoid falling, tumbling and breaking.

Cargo of hazardous material must be transported in a way the containers or the material itself do not suffer severe friction and vibration.

If possible cause of casualty, such as heavy leakage, is found during transportation, try to remedy the situation and notify the fact to the nearby fire department or the relevant bureau.
The driver carrying hazardous material must hold Yellow Card.
Do not load hazardous materials together with food and feedstuff.

15. Applicable laws

Labor Safety and Hygiene Law:
Hazardous materials to be notified to the authority (Chapter 57, Section 2)
(Cyclohexanone, tetrahydrofuran, methylethylketone)
Hazardous materials to be posted (Chapter 18 of Ordinance)
(Cyclohexanone, tetrahydrofuran, methylethylketone)
2nd class organic solvents (Solvent Addiction Prevention Rule, Clause 1.1.4)
(Cyclohexanone, tetrahydrofuran, methylethylketone)

Fire Defense Law: No. 4 Haz-Mat, No.1 Petroleum, Non-watersoluble liquid (Hazard Degree II)

PRTR Law: Not applicable
Poisonous & Deleterious Substance Control Law: Not applicable

16. Miscellaneous information

Literature:
1) Chemicals Safety Data Sheet (MSDS) Part 1: Content and Order of Items
2) Guideline for MSDS Edition (Revised Edition) by Japan Chem. Ind. Assoc.
3) GHS Classification Database, Site of National Institute of Technology and Evaluation
4) Hazard Handbook of Chemicals by Japan Industrial Safety and Health Association

This data sheet is edited by referring to recently available information, however, it is not intended to guarantee the data values or the precision of contained information. The precautions mentioned above are for ordinary handling and use. For special