

24 Seven Gardener AB	<b>Material Safety Data Sheet</b>	Date of Establishment	2016.02.10
		Date of Revision	2017.02.20

## 1. Chemical Product and Company Identification

A. Product Name:	SB-100R
B. Color:	Transparent light yellow
C. General Characteristics:	Permeable mortar
D. Purpose of Product:	Mortar material
E. Manufacturer/Supplier:	
1) Name of Manufacture:	24 Seven Gardener AB
2) Address:	Box 788, SE-224 57, Lund, Sweden
3) Information Provision Service and Emergency Telephone Number:	+46 10 456 6700 (Giftinformationscentralen)
4) Department in Charge	Research Institute (Attached)
5) Supplier/Distributor	24 Seven Gardener AB, Box 788, SE-224 57, Lund
6) Date of Preparation	2016.02.10

## 2. Hazards Identification

A. Classification of Hazards	Severe eye damage or irritation:	Class 2
	Skin corrosion or irritation:	Class 2
	Skin hypersensitivity:	Class 1
	Aquatic environmental hazard (chronic):	Class 2

### B. Warning Signs Including Precautionary statements

Hazard pictograms:



Signal word:

Warning

Hazard statements:

H315 Causes skin irritation.  
H317 Can cause allergic skin.  
H319 Causes serious eye irritation.  
H411 Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P264 Wash thoroughly after handling.  
P272 Avoid release (e.g. polluted clothing) to the environment.  
P273 Avoid release to the environment.  
P280 Wear protective gloves and eye protection.

Response P302+P352 IF ON SKIN: wash with plenty of soap and water.  
 P05+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.  
 Remove contact lenses, if present and easy to do. Continue rinsing.  
 P321 Take a necessary action.  
 P332+P313 IF SKIN irritation occurs: Get medical advice/attention.  
 P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.  
 P337+P313 IF eye irritation persists: Get medical advice/attention.  
 P362 Take off contaminated clothing and wash it before reuse.  
 P363 Wash contaminated clothing before reuse.  
 P391 Collect spillage.

Response N/A

Response P501 Dispose of contents/container to a waste disposal facility in accordance with related laws.

### 3. Composition and Information on Ingredients

Ingredient	Other Name (Trivial Name)	CAS NO.	Weight Percent (%)
4, 4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane	DIGLYCIDYL ETHER OF BIPHENOL A	25068-38-6	90~95
SI (Trade Secret)	***	***	5~10

### 4. First Aid Measures

- A. After eye contact: Do not rub eye.  
 Flush eyes with a lot of water for at least fifteen minutes.  
 If symptom (rash and/or irritation) develops and persists, get medical attention.  
 If wearing contact lens, first of all, take off them.
- B. After skin contact: Take off contaminated clothing and wash the affected area with soap and water at least 15 minutes.  
 Wash polluted clothing thoroughly before reuse.  
 If symptom (rash and/or irritation) develops and persists, get medical attention. After use, flush thoroughly with water.
- C. After inhalation: If exposed to a large amount of vapor or mist, move to fresh air.  
 Get necessary attention.
- D. After swallowing: Get medical advice if necessary to induce artificial vomiting. Wash mouth with water immediately.
- E. Other doctor's instructions Inform medical staffs of the situation of pollution so that they can also take a necessary and suitable preventive action.

## 5. Fire and Explosion Data

### A. Extinguishing media:

- Suitable Extinguishing media: Use alcohol foam, carbon dioxide or water spray (fog).  
Use dried sand or earth for extinguishment by smothering.
- Unsuitable Extinguishing media: Do not use water jet or flooding amount of water.

### B. Special hazards arising from

- the substance or mixture: While burning, pungent and very toxic gas can be generated by pyrolysis and combustion.  
A container can explode while heated.  
Some can burn, but are not easily ignited.  
Inflammable. A material does not burn, but can generate corrosive / toxic fume by pyrolysis when heated.

### C. Protective equipment

- and preventive measures: When a safety device gives alert sound or sign for fire, or tank discolors, evacuate the place immediately.  
If fire is in large scale, use unmanned water resistant device. When a situation does not allow to do so, step back and let it burn. Do not inhale the material itself or things from combustion. When the tank is enveloped in flames, do not get near it. Find and use a suitable method for surrounding. Vapor or gas can catch fire from close source of fire and rupture with violent force.

## 6. Accidental Release Measures

### A. Personal precautions, protective

- equipment and emergency procedures: Ventilate it before entering s closed space.  
Do not touch exposed matters.  
If it is possible for a worker to stop spill (release), stop it.  
Wear appropriate protective gears and handle damaged containers and exposed matters. Do not water-jet directly to spilled liquid or exposed area. Avoid contacting with skin and do not inhale.

### B. Environmental precautions:

- Block releases from flowing into sewerage arrangements and water system.  
When it is release of large amount, report to 119, Ministry of Environment, Regional Environmental Management Office, and/or city hall or provincial office (Environment Control Department).

### C. Methods and material

#### for containment and cleaning up:

#### Small spill

- Have sand or other nonflammable materials absorb spills.  
Wipe out solvent.  
Build embankment for following handling.  
Prevent spilled waste from flowing into waterway, drain, and/or underground water.

#### Large spill

- Avoid a low land and position oneself facing against wind.  
Build and manage embankment for handling spilled material.  
If the spill is over allowable limit, inform the central government and/or local government of the release and spill.

Handle spill in accordance with Wastes Control Act (Ministry of Environment).  
Collect and put the spilled material into an appropriate container for disposal.

## 7. Handling and Storage

- |                                   |   |
|-----------------------------------|---|
| A. Precautions for safe handling: | <p>Keep away from direct physical contact.<br/>Even after a container is emptied, the sediments (gas, liquid, and/or solid) of a product can remain. Therefore, abide by all precautions for MSDS and labeling.<br/>Handle in accordance with current laws and regulations.<br/>Handle only where ventilation is good.<br/>Do not inhale steam for long and repeatedly.</p> |
| B. Information about safe storage | <p>Store in accordance with current laws and regulations.<br/>Do not give a direct physical impact on a container.<br/>Avoid direct sunlight.<br/>Store only in initially designated containers.<br/>Be careful with materials and conditions you should keep away from.<br/>Collect and store in a well-closed container.<br/>Store away from water supply and sewer.</p>  |

## 8. Exposure Controls/Personal Protection

- |  |  |
|--|--|
| A. Exposure limit control (chemical, biological, etc.) |  |
| Domestic regulations                                   | N/A  |
| ACGIH(TLV)   | N/A  |
| Biological exposure limit                              | N/A  |
| B. Personal protective equipment:                      |  |
| Respiratory protective equipment:                      | <p>They are necessary if they are often used or exposed much.<br/>Respiratory protection is classified from minimum to maximum concentration.<br/>Be familiar with warning instructions before use.<br/>They include gas mask, direct-connection small gas mask, air-filtered respiratory protective gears, air supplied respirator, air inhalator</p> |
| Eye protection   | <p>Wear protective goggles or glasses from scatters or harmful liquid<br/>Install emergency washing facility (shower type) near workplace</p>  |
| Hand protection  | Wear appropriate protective gloves   |
| Body protection  | Wear appropriate protective clothing   |

## 9. Physical and Chemical Properties

A. Appearance:	Transparent light yellow liquid	
B. Odor:	Scentless	
C. PH-Value:	6~8	
D. Melting Point/Freezing Point:	Zero below 16 °C (at 1, 013hpa)	
E. Initial Boiling Point and Range:	≥ 204.4 °C	
F. Flashing Point:	266 °C	
G. Evaporating Rate:	N/A	
H. Flammability:	N/A	
I. Flammable Limits:	N/A	
J. Vapor Pressure:	4, 6×10 <sup>-8</sup> pa (at 25 °C)	
K. Solubility:	6.9mg/ℓ (at 20 °C)	
L. Vapor Density:	N/A	
M. Sp.gr:	1.15(water=1)	
N. Partition Coefficient of n-octanol/water:	Log P=3.242±0.324 (at 25 °C & PH 7.1)	
O. Auto-ignition temperature:	N/A	
P. Water Content	0.0001Q. Decomposition Temperature:	N/A
R. Viscosity:	1, 200~1, 500 centipoise (at 25 °C)	
S. Molecular Weight (Mw):	368 ~ 400	

## 10. Stability and Reactivity Data

A. Chemical Stability:	Stable under normal storage and handling conditions. Do not generate harmful polymerization
B. Conditions to Avoid:	Avoid incompatible materials and conditions
C. Incompatible Materials:	N/A
D. Hazardous Decomposition Products:	N/A

## 11. Toxicological Information

1) 4, 4'-(1-methylethylidene)bisphenol polymer with (chloromethyl)oxirane

A. Information on the likely routes of exposure

Inhalation	N/A
Ingestion	N/A
Skin contact	Can cause allergic skin. Cause irritation.
Eye contact	Causes severe irritation.

B. Description of the delayed, immediate, or chronic effects from short- and long-term exposure

Acute toxicity	
Ingestion	LD50 > 1, 000mg/kg Rat
Percutaneous (through skin)	LD50 > 20, 000mg/kg Rabbit
Inhalation	N/A
Skin corrosion	Shows rabbit skin irritation (Source: CERI Hazard, 2008). R38: Annex 1, UN Guideline (7th Revision) (Causes skin irritation) Shows more than average irritation in Rabbit Standard Draize Test.

Severe eye damage and irritation	Shows rabbit eye irritation (Source: CERI Hazard, 2008). Shows more than average irritation in Rabbit Standard Draize Test.
Inhalation hypersensitivity	N/A
Skin hypersensitivity	R43: Annex 1, UN Guideline (7th Revision) (Can cause skin hypersensitivity through skin contact.)
Carcinogens	
IARC	N/A
OSHA	N/A
ACGIH	N/A
NTP	N/A
EU CLP	N/A
Ministry of Environment Toxic Chemicals Control Act	N/A
Germ Cell Mutagenicity	Turned out positive in In vitro CHL cells and chromosomal abnormality test in absence of metabolic activation; negative in chromosomal abnormality test in presence of metabolic activation; and positive in salmonella typhimurium test.
Reproductive Toxicity	N/A
Specific Target Organ Toxicity (Single Exposure)	N/A
Specific Target Organ Toxicity (Repeated Exposure)	N/A
Respiration Hazard	N/A
Notification of Ministry of Employment and Labor	
Carcinogens	N/A
Germ Cell Mutagenicity	N/A
Reproductive Toxicity	N/A

## 12. Ecological Information

### A. Ecological toxicity of aquatic and/or terrestrial organisms

Fish	LC50 = 1.41mg/l 96hr <i>Oryzias latipes</i>
Shell	EC50 = 1.7mg/l 48hr
Bird	N/A

### B. Persistence and Degradability

Persistence	log Kow = 2.821 (Estimates)
Degradability	N/A

### C. Bioaccumulation

Bioaccumulation	BCF = 0.56 ~ 0.67 (Exposure concentrations : 10 ug/l, 5.6 <= BCF <= 6.8(Exposure concentrations : 1ug/l))
Biodegradability	Biodegradability = 0 (%) 28 day

### D. Mobility in Soil

N/A

### E. Other Adverse Effects

N/A

### 13. Disposal Considerations

- A. Disposal Method  
 2 kinds of specified/designated wastes are mixed in the concerned matter. If it is hard to separate them to each, it's advised to incinerate or dispose of them in a similar method as incineration to lose weight and stabilize them. In case it is possible to separate water from oil, apply the method as pre-treatment and then incinerate.  
 In case that a situation is not allowed for incineration, smash or cut them in 15 centimeters at maximum diameter and melt them. And landfill them in reclamation facility under control.
- B. Disposal Considerations  
 A business that discharges industrial waste shall dispose of their wastes for himself, or commission waste disposal company, he/she who recycles and processes other's wastes, or he/she who is equipped with waste disposal facility to handle the wastes. Comply with Wastes Control Act.

### 14. Transport Information

- A. UN NO. 3082
- B. Proper shipping name Environmentally hazardous substance, liquid, N.O.S  
 (Diglycidyl Ether of Bisphenol A)
- C. Transport hazard class IX
- D. Container class III
- E. Marine pollutant Subject to
- F. Special precautions for user regarding transportation and means of transportation or special safety measures to be taken
- : In compliance with Safety Control of Dangerous Substances Act for local transportation.
  - : Packing and transporting in accordance with DOT and other regulations.
- Emergency measure in fire F - A
- Emergency measure in spill S - F

### 15. Other Regulatory Information

- A. Industrial Safety and Health Act N/A
- B. Toxic Chemicals Control Act A chemical subject to toxics release inventory
- C. Safety Control of Dangerous Substances Act N/A
- D. Wastes Control Act Specified/designated waste
- E. Other Regulations (Domestic & International)
- Domestic Regulations
- Persistent Organic Pollutants Control Act N/A
- International Regulations
- OSHA N/A
  - CERCLA N/A
  - EPCRA 302 N/A
  - EPCRA 304 N/A
  - EPCRA 313 N/A
  - Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade N/A

Stockholm Convention on Persistent Organic Pollutants N/A  
 Montreal Protocol on Substances that Deplete the Ozone Layer N/A

EU Classification Info.

Finalized Class Xi; R36/38 R43  
 N; R51-53  
 Danger statement R36/38 Can irritate eye and skin.  
 R43 Can cause skin hypersensitivity through skin contact.  
 R51/53 Toxic to aquatic organism and causes a long-term adverse effect on aquatic environment.  
 Precaution statement S2 Keep it away from child's reach.  
 Safety statement S24/25 Do not contact with skin and eye.  
 S37/39 Wear protective gloves and goggles/protective mask.  
 S61 Avoid release to environment. Refer to environment-related laws and regulations and MSDS data.

F. NFPA Hazard Classes

Health: 2 Fire: 1 Reactivity: 0

Cas No.	25068-38-6
Korea (KECL)	KE-24000
USA (TSCA)	Listed
EU	500-033-5
Japan (MITI/ENCS)	7-1279
China (IECSC)	Listed
Canada (DSL/NDSL)	DSL
Australia (AICS)	Listed

**16. Other Information**

- A. References: Standard regarding writing and keep/arrange Material Safety Data Sheet (MSDS)  
 Hands-On Practice of MSDS for Chemical Mixtures  
 MSDS of raw materials obtained from raw material suppliers
- B. Other Special Considerations: The concerned information has been prepared by using currently available DB in an attempt to protect the employees' health, environment, and safety.