

MATERIAL SAFETY DATA SHEET

Manufacturer's Name: Owens-Illinois, Inc.
 Technical Products
Address: One Seagate
 Toledo, Ohio 43666
Telephone: 419-247-5000

Manufacturer's Chemical I.D.: SG-67
Manufacturer's Contact: Perry P. Pirooz
Date Prepared: August 26, 1985
Emergency Telephone: 419-247-5050

SECTION 1 - IDENTITY

Common Name: SG-67 (Solder Glass) **C.A.S. No.:** none (mixture)
Chemical Name: Lead Borate
Formula: NA **Chemical Family:** Lead Borate

SECTION 2 - HAZARDOUS INGREDIENTS

Hazardous Components	%	Threshold Limit Value (ACGIH)
Barium Oxide	>1%	500 µg/m ³
Copper Oxide	>1%	200 µg/m ³ (fume), 1 mg/m ³ (dust)
Lead Oxide	>1%	150 µg/m ³
Silicon Dioxide	>1%	0.1 mg/m ³ (respirable)

Note: The balance of this product is composed of materials classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as non-toxic, or nuisance dust.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data)

Boiling Point: NA **Vapor Density (Air=1):** NA **Vapor Pressure (mm Hg):** NA
% Volatile by Volume: NA **Evaporation Rate:** NA **Specific Gravity (water=1):** 5.38
Solubility in Water: moderately soluble **Reactivity in Water:** non-reactive
Appearance & Odor: Green powdered particulate with no odor.
Flash Point: NA **Flammability Limits (lower):** NA **Flammability Limits (upper):** NA
Extinguisher Media: Select for surrounding materials **Auto-ignition Temp.:** NA
Special Fire Fighting Procedures: Use self-contained breathing apparatus to prevent inhalation of lead dust and fume.
Fire & Explosion Hazards: Lead oxide can be an oxidizing agent for combustible materials when hot.

Manufacturer's Chemical I.D.

SG-67

SECTION 4 - PHYSICAL HAZARDS

Stability: Unstable -	<input type="checkbox"/>	Conditions NA
Stable -	<input checked="" type="checkbox"/>	to Avoid:
Incompatibility (materials to avoid):	Chlorinated rubber plus PbO will react if heated.	
Hazardous Decomposition Products:	Lead, Barium, Silicon Dioxide, Copper.	
[Hazardous Polymerization] May Occur -	<input type="checkbox"/>	Conditions NA
Will Not Occur -	<input checked="" type="checkbox"/>	to Avoid:

SECTION 5 - HEALTH HAZARDS

Threshold Limit Value: Lead, 150 µg/m³; Barium, 50 µg/m³; Silicon Dioxide, 100 µg/m³; Copper, 200 µg/m³ (fume), 1 mg/m³ (dust).

[Signs & Symptoms of Exposure]

1. Acute Overexposure: Stupor, coma, death.
2. Chronic Overexposure: Headache, nausea, cramps, dizziness, weakness, diarrhea and loss of appetite.

Medical Conditions Generally Aggravated by Exposure: Respiratory system and circulatory system disorders.

[Chemical listed as Carcinogen or Potential Carcinogen]	National Toxicology Program	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	I.A.R.C. Monographs	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	OSHA	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
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OSHA Permissible Exposure Limit: Ba, 500 µg/m³; Pb, 50 µg/m³; Si (var.), use (10mg/m³ ÷ % SiO₂ + 2); Cu, 200 µg/m³ (fume).

CGH Threshold Limit Value: Pb, 150 µg/m³; Ba, 500 µg/m³; Si, 100 mg/m³ (respirable); Cu, 100 µg/m³ (fume), 1 mg/m³ (dust).

Emergency & First Aid Procedures:

1. Inhalation: Remove to fresh air, consult physician.
2. Eyes: Flush with water, consult physician.
3. Skin: Clean with water.
4. Ingestion: Contact physician promptly. Gastric lavage may be required.

SECTION 6 - SPECIAL PROTECTION INFORMATION

Respiratory Protection: Half face/ H.E.P.A. @ <500 µg/m³; self-contained breathing apparatus @ >500 µg/m³.

Ventilation: Local exhaust recommended.

Personal Protective Equipment: Gloves, eye protection and full body clothing is recommended. Special handling of contaminated articles is required.

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Store in closed container away from food. Prevent dusting and practice good housekeeping and hygiene.

Other Precautions: Do not allow eating, smoking or drinking in storage area.

Steps to be Taken in Case Material is Released or Spilled: Clean up immediately. Use vacuum or wet method. Do not dry broom or blow with air which would suspend dust in air.

Waste Disposal Methods: Refer to local & federal EPA regulations.

MATERIAL SAFETY DATA SHEET

Manufacturer's Name: SEM-COM Company
Address: PO Box 8428
 Toledo OH 43623
Telephone: 419-537-8813
Emergency Telephone: 419-537-8813

Manufacturer's Product ID: SCB-2

Manufacturer's Contact: A. Dennis
Date Prepared: May 23, 2007

SECTION 1 - IDENTITY

Common Name:
Chemical Name:
Formula:

SCB-2
 Lead Zinc Borate Glass
 See Section 2

CAS NO.: None

Chemical Family: Inorganic Glass

SECTION 2 - HAZARDOUS INGREDIENTS

	CAS NO.	%	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
* Lead Oxide (PbO)	1317-36-8	< 75	.05 as Pb	.05 as Pb
Boron Oxide (B ₂ O ₃)	1303-86-2	< 25	15	10
* Zinc Oxide (ZnO)	1314-13-2	< 10	10 (dust), 5 (fume)	15 (5 : esp.) dust, 5 (fume)
Silicon Dioxide (SiO ₂), amorphous	7631-86-9	< 5	6	10
Aluminum Oxide (Al ₂ O ₃)	1344-28-1	< 5	15 (5 resp.)	.5 as Ba (sol.)
* Barium Oxide (BaO)	1304-28-5	< 5	.5 as Ba (sol.)	1 (dust), .2 (fume); as Cu
* Cupric Oxide (CuO)	1317-38-0	< 5	1 (dust), .1 (fume); as Cu	

* Listed under Section 313 of Title 3 (SARA). The balance of this product is composed of materials classified by ACGIH as non-toxic or nuisance dust. (PEL=15 mg/m³, TLV=10 mg/m³)

NOTE: Glass is formed by melting and rapidly quenching a combination of materials; the individual chemical constituents then become components of the glass and do not exhibit the same properties as in their state.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data)

Boiling Point: NA Vapor Density (Air =1): NA Vapor Pressure (mm Hg): NA
 Volatile by Volume: NA Evaporation Rate: NA Specific Gravity (water =1): 5.4
 Solubility in Water: Moderate Reactivity in Water: None Melting Point: 1200°C

Appearance and Odor: Odorless, green solid or powder

Flash Point: NA Flammability Limits (lower): NA Extinguisher media: Same as for surrounding area.
 Auto-Ignition Point: NA Flammability Limits (upper): NA

Special Fire Fighting Procedures: Wear pressure-demand, self contained breathing apparatus with appropriate personal Protection equipment.

Fire & Explosion Hazards: Lead Oxide can be an oxidizing agent for combustible materials when hot.

TSCA
(Toxic Substance Control Act)

Components of this product are listed on the TSCA Inventory.

Manufacturer's Product I.D.: **SCB-2**

SECTION 4 - PHYSICAL HAZARDS

Stability: Unstable:
Stable:

Incompatibility (materials to avoid): **Chlorinated rubber + PbO will react when heated**

Hazardous Decomposition Products: **PbO when heated**

Conditions to Avoid: **Avoid generating dust and fumes; avoid reheating and remelting at high temperatures.**

Hazardous Polymerization: } May Occur:
Will Not Occur:

SECTION 5 - HEALTH HAZARDS

Threshold Limit Value: **See Section 2**

Signs & Symptoms of Exposure } Acute overexposure: **Stupor, coma, death**
Chronic overexposure: **Headache, nausea, cramps, dizziness, weakness, diarrhea, and loss of appetite**

Medical Conditions Generally Aggravated by Overexposure: **Respiratory system and circulatory system disorders**

Chemical listed as Carcinogen or Potential Carcinogen } National Toxicology Program: YES NO
I.A.R.C. Monographs: YES NO
OSHA: YES NO

OSHA Permissible Exposure Limit: **See Section 2**
ACGIH Threshold Limit Value: **See Section 2**

Emergency & First Aid Procedures:

- 1. Inhalation: **Remove to fresh air, consult physician**
- 2. Eyes: **Immediately flush eyes with large amounts of fresh water, consult physician**
- 3. Skin: **Immediately wash skin with soap and water.**
- 4. Ingestion: **Contact physician promptly. Gastric lavage may be required**

SECTION 6 - SPECIAL PROTECTION INFORMATION

Respiratory Protection: **Half face/HEPA @ 500 µg/m³, self contained breathing apparatus >500 µg/m³**

Ventilation: **Local exhaust recommended.**

Personal Protective Equipment: **Gloves, eye protection and full body clothing are recommended. Special handling of contaminated clothing may be required**

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/ LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: **Store in closed container away from food. Prevent dusting and practice good housekeeping and hygiene.**

Other Precautions: **Do not allow eating, smoking or drinking in storage area.**

Steps to be Taken in Case Material is Released or Spilled: **Clean up immediately. Use vacuum or wet mop. Do not dry broom or blow with air which would suspend dust in air.**

Waste Disposal Methods: **Refer to local and federal EPA regulations.**