



MATERIAL SAFETY DATA SHEET

ASTRO™ ClimaPlus™ with Aegis Microbe Shield Illusion Two/24

MSDS # 41-250-002
Page 1 of 9

USG Interiors, Inc.
125 South Franklin Street
Chicago, Illinois 60680-4470
A Subsidiary of USG Corporation

Product Safety: 1 (800) 507-8899
www.usg.com
Version Date: October 7, 2003
Version: 2

SECTION 1 CHEMICAL PRODUCT AND IDENTIFICATION

PRODUCT: USG Acoustical Ceiling Panels and Tiles - ASTRO™ ClimaPlus™ with Aegis Microbe Shield Illusion Two/24

SYNONYM: Mineral wool acoustical ceiling panels

CHEMICAL FAMILY: Mixture of slag wool and minerals. Ceiling panels and tiles are products considered not to be dangerous chemicals or preparations.

Manufactured by

USG Interiors, Inc.

850 North Broadway, Greenville, MS 38701-2305

and USG Interiors, Inc.

35 Arch St.

Cloquet, MN 55720-1599

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

Ceiling panels are composed of inorganic substances including MMVF22 [(slag wool) man made vitreous (silicate) fibres (CAS 65997-17-3)], expanded perlite (CAS 93763-70-3), clay (kaolin, CAS 1332-58-7), and recycle paper (CAS 9004-34-6) using starch (CAS 9005-25-8) binder to form a solid dry matrix. The ceiling panels are coated on the surface with a solvent-free water based latex paint.

MATERIAL	WT%	TLV (mg/m ³)	PEL (mg/m ³)	CAS NUMBER
Slag Wool Fiber ¹ [recycled]	<30	1 f/cc (R) ¹	15(T)/5(R)	65997-17-3
Expanded Perlite	>40	10	15(T)/5(R)	93763-70-3
Paper (Cellulose) [recycled post consumer]	>15	10	15(T)/5(R)	9004-34-6
Starch	>10	10	15(T)/5(R)	9005-25-8
Kaolin	1-15	10	15(T)/5(R)	1332-58-7
Crystalline Silica (quartz) ²	<5	0.05 (R)	0.1(R)	14808-60-7
Vinyl Acetate Polymer ³	1-2	(NE)	(NE)	9003-20-7
AEGIS Microbe Shield™	<1	(NE)	(NE)	27668-52-6
Or Ethylene Vinyl Acetate Polymer				24937-78-8
May be available with foil backing:				
Aluminum Foil (As Aluminum and compounds)	<3	10	15(T)/5(R)	7429-90-5

(T) – Total (R) – Respirable (NE) – Not Established

¹TWA is 1 f/cc [respirable fibers: length >5µm; aspect ratio ≥3:1, as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase-contrast illumination]. NIOSH recommended exposure level is 3 fibers/cc. This material is slag wool. Other generic terms that are used or have been used to classify this material include mineral wool, man made mineral fiber (MMMMF), and man made vitreous fiber (MMVF). A more recent generic term that has appeared in the literature to describe these glassy materials is synthetic vitreous fiber (SVF).

²The weight percent for silica represents total quartz and not the respirable fraction. Respirable crystalline silica was not detected in industrial hygiene testing on workers installing acoustical ceiling panels for an 8 hour work day as measured by NIOSH Method 7500. Respirable crystalline silica: IARC: Group 1 carcinogen, NTP: Known human carcinogen.

³Ingredient only in painted surface coating that is a solvent-free water-based latex paint.



MATERIAL SAFETY DATA SHEET

ASTRO™ ClimaPlus™ with Aegis Microbe Shield Illusion Two/24

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS (continued)

This product is a manufactured article and therefore exempt from the requirements of Canada's WHMIS.

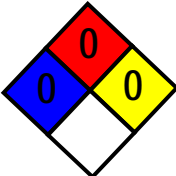
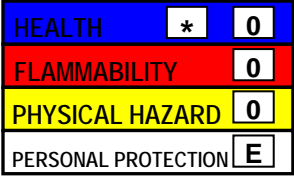


Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] – Calcium Sulfate is Generally Recognized as Safe (GRAS).

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory. All components of this product are included in the Canadian Domestic Substances List (DSL).

SECTION 3 HAZARD IDENTIFICATION

INFORMATION FOR HANDLING AND IDENTIFICATION OF CHEMICAL HAZARDS

NFPA Ratings:		HIMS Ratings:		0 = Minimal Hazard
Health: 0		Health: *0		1 = Slight Hazard
Fire: 0		Fire: 0		2 = Moderate Hazard
Reactivity: 0		Reactivity: 0		3 = Serious Hazard
				4 = Severe Hazard

Personal Protection: Use eye protection. Use gloves and NIOSH/MSHA-approved respiratory protection when required.
*Respirable crystalline silica can cause lung disease and/or cancer.

EMERGENCY OVERVIEW

This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract.

Man-made mineral fibres have been classified by the European Union as irritating to skin (R:38).

POTENTIAL HEALTH EFFECTS

ACUTE:

The components of acoustical ceiling panels and tiles are bound in a cementitious matrix. When panels are cut or trimmed, especially with power tools, the resulting dust may cause transitory mechanical irritation to skin, eyes or respiratory tract.

Eyes: Airborne dust or direct contact can cause mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.

Skin: Direct, prolonged or repeated contact with the skin can cause temporary irritation and itchiness. Rubbing of this product against the skin can result in abrasions. If irritation persists, consult a physician.

Inhalation: Inhalation of dust can irritate the nose, throat, and the upper respiratory tract. Persons subjected to large amounts of this dust will be forced to leave area because of nuisance conditions such as coughing, sneezing and nasal irritation. Labored breathing may occur after excessive inhalation. If respiratory symptoms persist, consult physician.

Ingestion: Unlikely to occur, but if ingested may cause temporary irritation to the gastrointestinal tract, especially the throat and stomach.

CHRONIC:

Inhalation: Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration. Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing.

The concentration of respirable crystalline silica measured in airborne dust samples was below the detection limit using NIOSH Method 7500 in industrial hygiene testing of workers installing USG Acoustical Ceiling Panels for an 8 hour work day.

Slag wool fiber has been classified as "not classifiable as to its carcinogenicity to humans" (Group 3) by the International Agency for Research on Cancer (IARC).



SECTION 3 HAZARD IDENTIFICATION (continued)

CHRONIC (continued):

Eyes: No known effects

Skin: No known effects.

Ingestion: No known effects.

TARGET ORGANS: Eyes, skin and nose, throat & respiratory system.

PRIMARY ROUTES OF ENTRY: Inhalation, eyes and skin contact.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma. Pre-existing skin diseases such as, but not limited to, rashes and dermatitis.

**SECTION 4
FIRST AID MEASURES**

FIRST AID PROCEDURES

Eyes: In case of contact, do not rub or scratch your eyes. Dust particles may scratch the eye. Immediately flush thoroughly with water for 15 minutes to remove particulate. If irritation persists, contact a medical professional.

Skin: Rinse with cool water and then wash with soap and warm water. A commercially available skin cream or lotion may be helpful to treat dry skin areas. If skin has become cracked, take appropriate action to prevent infection and promote healing. If irritation or other disorders persist, consult physician.

Inhalation: If exposed to excessive levels of dust, leave area of dust exposure to fresh air and remain away until coughing and other symptoms subside. Drink water to clear throat, and blow nose to remove dust. Other measures are usually not necessary, however if conditions warrant, contact physician.

Ingestion: No harmful effects expected. If ingested, rinse mouth with water to remove particulate. If gastric disturbance occurs, call physician.

Notes to Physician: This product is a mechanical irritant, and is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.

**SECTION 5
FIRE FIGHTING MEASURES**

General Fire Hazards:	Not expected to burn.		
Extinguishing Media:	Water or use extinguishing media appropriate for surrounding fire.		
Special Fire Fighting Procedures:	None use normal procedures.		
Unusual Fire and Explosion Hazards:	None		
Hazardous Combustion Products:	Organic material in the panels can produce oxides of carbon.		
Flash Point:	None Known	Auto Ignition:	Not Applicable
Method Used:	Not Applicable	Flammability Classification:	Limited combustible
Upper Flammable Limit (UFL):	Not Applicable	Rate of Burning:	Not Applicable
Lower Flammable Limit (LFL):	Not Applicable		



MATERIAL SAFETY DATA SHEET

ASTRO™ ClimaPlus™ with Aegis Microbe Shield Illusion Two/24

MSDS # 41-250-002
Page 4 of 9

SECTION 6 ACCIDENTAL RELEASE MEASURES

CONTAINMENT:

No special precautions. Containment not necessary. Treat as inert material. Keep the spill dry and away from incompatibles (See Section 10). Wear appropriate personal protection (See Section 8). Collect the material from spillage and if not damaged or contaminated by foreign material, ceiling panels may be reclaimed.

CLEAN-UP:

Use normal clean up procedures. Pick up large pieces. Wear appropriate protective equipment. Use gloves to avoid skin irritation. If dry, shovel or sweep up material from spillage and place collected material into a container for recovery or waste disposal. Avoid dust generation. Avoid inhalation of dust and contact with eyes and skin. Maintain proper ventilation. If vacuum is used to collect dust, use an industrial vacuum cleaner with a high efficiency air filter. If sweeping is necessary, use dust suppressant such as water. Do not dry sweep dust accumulation or use compressed air for clean up. These procedures will help minimize potential exposures.

SECTION 7 HANDLING AND STORAGE

HANDLING:

Avoid dust contact with eyes. Wear the appropriate eye protection against dust (See Section 8).

Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8).

Minimize dust generation and accumulation. Use good safety and industrial hygiene practices.

Follow traditional building practices; such as management of water away from the interior of the structure to avoid the growth of mold, mildew and fungus. Remove from the jobsite any building products suspected of being exposed to sustained moisture and considered conducive to mold growth.

STORAGE:

Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities (see Section 10).

Protect from weather and prevent exposure to sustained moisture.

Protect product from physical damage.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Good general ventilation should be sufficient to control airborne dust levels.

If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits (See Section 2).

Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits (see Section 2).

Avoid unnecessary exposure to dust and handle with care. Keep work area clean of dust and fibers by using an industrial vacuum cleaner with high efficiency filter or wetting down area with water. Never use compressed air and avoid dry sweeping.

RESPIRATORY PROTECTION:

Wear an NIOSH/MSHA-approved respirator equipped with particulate cartridges when dusty in poorly ventilated areas, and if TLV is exceeded. A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. Avoid prolonged and repeated breathing of dust.



ASTRO™ ClimaPlus™ with Aegis Microbe Shield

Illusion Two/24

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face: Wear eye protection (safety glasses with side shields or goggles) to avoid particulate irritation of the eye.

Skin: Gloves or protective clothing are usually not necessary but may be desirable in specific work situations. For brief contact, no precautions other than clean body-covering clothing should be needed. Wear gloves [chemical gloves are not necessary, there is no chemical irritation hazard]; a long-sleeved shirt loose fitting at the neck and wrists, and long pants to prevent repeated or prolonged skin contact. Barrier creams or skin lotion may be applied to face, neck, wrist and hands when skin is exposed to help prevent drying of skin. Wash work clothing separately from other clothing. Rinse washer thoroughly after use.

General: Selection of Personal Protective Equipment will depend on environmental working conditions and operations.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White or colored surface; beige/gray core	Odor	Low to no odor
Physical State	Solid	pH @ 25 ° C	~ 9
Vapor Pressure	Not applicable	Vapor Density (Air = 1)	Not applicable
Boiling Point	Not applicable	Vapor Pressure (mm Hg)	Not applicable
Freezing Point	Not applicable	Evaporation Rate (BuAc = 1)	Not applicable
Melting Point	1200°C (slag wool)	Percent Volatile	0
Softening Point	700°C (slag wool)	Particle Size	Not applicable
Solubility (H2O)	Very low	Molecular Weight	Not applicable
Viscosity	Not applicable	Bulk Density	~ 250 -400 kg/m ³
Specific Gravity (H₂O = 1):	2.9		

SECTION 10

CHEMICAL STABILITY AND REACTIVITY

STABILITY:	Stable.
CONDITIONS TO AVOID:	High humidity, moisture, contact with incompatibles.
INCOMPATIBILITY:	Acids.
HAZARDOUS POLYMERIZATION:	Will not occur.
HAZARDOUS DECOMPOSITION:	The decomposition products from this material are those that would be expected from any organic (carbon-containing) material, and are mainly derived from pyrolysis (burning) of the organics. These decomposition products may include carbon monoxide, carbon dioxide, and carbon particles.

SECTION 11

TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:

Direct contact of dust and especially mineral wool fibers with skin can cause eye and skin irritation (mechanical) and itchiness. Inhalation of dust can cause coughing and sneezing due to temporary irritation of nose and throat.

LD₅₀: Not Available for product.

LC₅₀: Not Available for product.



MATERIAL SAFETY DATA SHEET

ASTRO™ ClimaPlus™ with Aegis Microbe Shield Illusion Two/24

MSDS # 41-250-002
Page 6 of 9

SECTION 11 TOXICOLOGICAL INFORMATION (continued)

CHRONIC EFFECTS / CARCINOGENICITY:

Slag Wool Fiber: Large morbidity and mortality studies of both European and North American mineral wool manufacturing workers have been conducted. These studies have found no significant association of non-malignant (i.e. fibrosis) or malignant (i.e., lung cancer or mesothelioma) lung disease and exposures to slag wool fibers and have not established a causal relationship between exposure and malignant diseases.

In 2001, the International Agency for Research on Cancer (IARC) assigned slag wool fiber to the Group 3 category ["not classifiable as to carcinogenicity to humans"].

The synthetic mineral fiber used in this product is exonerated from classification as a carcinogen in accordance with Note Q in the EU Commission Directive 97/69/EC.

Industrial hygiene testing on workers installing acoustical ceiling panels for an 8 hour work day showed that the average respirable fiber exposure was 0.12 f/cc per NIOSH Method 7400-B.

Crystalline silica: Industrial hygiene testing on workers installing USG acoustical ceiling panels did not detect respirable crystalline silica in airborne dust exposures during a regular work day.

Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration. Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing.

In June 1997, IARC classified crystalline silica (quartz and cristobalite) as a human carcinogen. In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.

IARC states that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

SECTION 12 ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY: This product has no known adverse effect on the ecology. A large discharge directly into waterways would not be expected to kill aquatic life. **Ecotoxicity Values:** Not determined.

SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Dispose of material in accordance with Federal, State, Provincial, and Local regulations. Consult with environmental regulatory agencies for guidance on acceptable disposal practices. A local provider of solid waste disposal can assist with compliance of local code requirements for this building material.

SECTION 14 TRANSPORT INFORMATION

U.S. DOT INFORMATION: Not a hazardous material per DOT shipping requirements. Not classified or regulated.

Shipping Name	Same as product name.
Hazard Class:	Not classified
UN/NA #:	None. Not classified.
Packing Group:	None.
Label (s) Required:	Not applicable.
GGVSec/MDG-Code:	Not classified.



MATERIAL SAFETY DATA SHEET
ASTRO™ ClimaPlus™ with Aegis Microbe Shield
Illusion Two/24

SECTION 14 TRANSPORT INFORMATION (continued)

ICAO/IATA-DGR: Not applicable.
RID/ADR: None
ADNR: None

SECTION 15
REGULATORY INFORMATION

UNITED STATES REGULATIONS

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory.

MATERIAL	WT%	302	304	313	CERCLA	CAA Sec. 112	RCRA Code
Slag Wool Fiber	<30	NL	NL	NL	NL	NL	NL
Expanded Perlite	>40	NL	NL	NL	NL	NL	NL
Recycled Paper (Cellulose)	>15	NL	NL	NL	NL	NL	NL
Starch	>10	NL	NL	NL	NL	NL	NL
Kaolin	1-15	NL	NL	NL	NL	NL	NL
Crystalline Silica (quartz)	<5	NL	NL	NL	NL	NL	NL
Vinyl Acetate Polymer	1-2	NL	NL	NL	NL	NL	NL
Or Ethylene Vinyl Acetate Polymer		NL	NL	NL	NL	NL	NL
May be available with foil backing:							
Aluminum Foil (As Aluminum and compounds)	<3	NL	NL	NL	NL	NL	NL

Key : NL = Not Listed

SARA Title III Section 302 (EPCRA) Extremely Hazardous Substances: Threshold Planning Quantity (TPQ)

SARA Title III Section 304 (EPCRA) Extremely Hazardous Substances: Reportable Quantity (RQ)

SARA Title III Section 313 (EPCRA) Toxic Chemicals: X= Subject to reporting under section 313

CERCLA Hazardous Substances: Reportable Quantity (RQ)

CAA Section 112 (r) Regulated Chemicals for Accidental Release Prevention: Threshold Quantities(TQ)

RCRA Hazardous Waste: RCRA hazardous waste code

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. All components of this product are included in the Canadian Domestic Substances List (DSL).

MATERIAL	WT%	IDL Item #	WHMIS Classification:
Slag Wool Fiber	<30	Not Listed	Not Listed
Expanded Perlite	>40	Not Listed	Not Listed
Recycled Paper (Cellulose)	>15	Not Listed	Not Listed
Starch	>10	Not Listed	Not Listed
Kaolin	1-15	Not Listed	Not Listed
Crystalline Silica (quartz)	<5	1406	D2A
Vinyl Acetate Polymer	1-2	Not Listed	Not Listed
Or Ethylene Vinyl Acetate Polymer		Not Listed	Not Listed
May be available with foil backing:			
Aluminum Foil (As Aluminum and compounds)	<3	47	Not Listed

IDL Item # : Canadian Hazardous Products Act – Ingredient Disclosure List Item #

WHMIS Classification: Workplace Hazardous Material Information System



MATERIAL SAFETY DATA SHEET
ASTRO™ ClimaPlus™ with Aegis Microbe Shield
Illusion Two/24

SECTION 15 REGULATORY INFORMATION (continued)

CARCINOGENICITY CLASSIFICATION OF INGREDIENT(S)

See Section 11 : Toxicology Information for detailed information

MATERIAL	IARC	NTP	ACGIH	CAL- 65
Respirable Crystalline Silica	1	1	A2	Listed
Slag Wool Fiber	3	2	A3	Not Listed

IARC – International Agency for Research on Cancer (World Health Organization)

- 1- Carcinogenic to humans
- 2A – Probably carcinogenic to humans
- 2B – Possibly carcinogenic to humans
- 3 - Not classifiable as a carcinogen
- 4 – Probably not a carcinogen

NTP – National Toxicology Program (Health and Human Services Dept., Public Health Service, NIH/NIEHS)

- 1- Known to be carcinogen
- 2- Anticipated to be carcinogens

ACGIH – American Conference of Governmental Industrial Hygienists

- A1 – Confirmed human carcinogen
- A2 – Suspected human carcinogen
- A3 – Animal carcinogen
- A4 - Not classifiable as a carcinogen
- A5 – Not suspected as a human carcinogen

CAL-65 – California Proposition 65 “Chemicals known to the State of California to Cause Cancer”

EUROPEAN REGULATIONS

EC Classification

This product contains mineral wool [Man made vitreous (silicate) fibres].

Danger Symbol: X, Irritant

Risk Phrases: Irritating to skin (R:38)

Safety Phrases: Wear suitable protective clothing and gloves (S36/37).

The mineral wool in this product is exonerated from classification as a carcinogen according to Note Q in EU Commission Directive 97/69/EC.

SECTION 16
OTHER INFORMATION

Label Information

ΔWARNING!

Follow good safety and industrial hygiene practices during the handling and installing of all products and systems. Dust created from product can cause temporary eye, skin, nose, throat or upper respiratory irritation.

Avoid creating dust and use proper ventilation to reduce dust exposure. Cut and trim with razor knife or hand saw to minimize dust levels. Using power tools for cutting will generate high dust levels. Power tools must be equipped with dust collection system. Use NIOSH/MSHA-approved dust respirator when exposure limits are exceeded. Avoid dust contact with eyes and skin. Wear eye protection and long-sleeve, loose fitting clothing closed at the neck and wrists. Wash work clothing separately from other clothing. Rinse washer thoroughly. If eye contact occurs, flush thoroughly with water for 15 minutes. If irritation persists, call physician. Do not ingest. If ingested, call physician.

Product safety information: (800) 507-8899 or www.usg.com

KEEP OUT OF REACH OF CHILDREN.



MATERIAL SAFETY DATA SHEET
ASTRO™ ClimaPlus™ with Aegis Microbe Shield
Illusion Two/24

MSDS # 41-250-002
Page 9 of 9

SECTION 16 OTHER INFORMATION (continued)

Key/Legend

TLV	Threshold Limit Value
PEL	Permissible Exposure Limit
CAS	Chemical Abstracts Service (Registry Number)
NIOSH	National Institute for Occupational Safety and Health
MSHA	Mine Safety and Health Administration
OSHA	Occupational Health and Safety Administration
ACGIH	American Conference of Governmental Industrial Hygienists
IARC	International Agency for Research on Cancer
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
NFPA	National Fire Protection Association
HMIS	Hazardous Materials Identification System
PPE	Personal Protection Equipment
TSCA	Toxic Substances Control Act
DSL	Canadian Domestic Substances List
NDSL	Canadian Non-Domestic Substances List
SARA	Superfund Amendments and Reauthorization Act of 1986
RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
UN/NA#	United Nations/North America number
CFR	Code of Federal Regulations
WHMIS	Workplace Hazardous Material Information System

Prepared by:

Product Safety

USG Corporation

125 South Franklin St.

Chicago, Illinois 60606

END