MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: .... Hi-Sil® 233
PRODUCT ID: 44949
SYNONYMS: ..... Synthetic Precipitated Silicas; Amorphous Silica; Silicon Dioxide; SiO_2
DATE: 05/20/1997
EDITION NO.: 010

PPG Industries, Inc.
One PPG Place, Pittsburgh, PA 15272, USA

24-hour Emergency Telephone Number: 1-304-843-1300

For Product Information (8am-5pm Eastern time): 1-800-243-6745 (Silica)

PREPARER: R. Kenneth Lee, Manager, Product Safety

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material/CAS Number	Percent
Hydrated Amorphous Silica 7631-86-9	>87

Contains no detectable crystalline silica (detection limit <0.01% by weight).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! May cause irritation.

Precautions: Avoid contact with eyes; may cause irritation and pain. Avoid prolonged, repeated, or excessive contact with skin; may cause irritation and discomfort. Avoid prolonged or repeated inhalation of dust; may irritate the respiratory tract. Wear respiratory protection when dust exposure is above permissible exposure limits. Use with adequate ventilation. Ventilation must be sufficient to limit employee exposure to this product below permissible exposure limits. Wash thoroughly every day after work. Do not eat, drink or smoke in work area.

4. FIRST AID MEASURES

INHALATION: If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

EYE/SKIN CONTACT: In case of contact, immediately flush eyes and skin with plenty of water (soap and water for skin) for at least 15 minutes. Get medical attention if irritation persists.

INGESTION: Not a likely route of exposure.

NOTES TO PHYSICIAN: Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLASH POINT: None

EXTINGUISHING MEDIA: NA

SPECIAL FIREFIGHTING PROCEDURES: None known.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Vacuum spilled material and place in closed plastic bags for disposal.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORAGE:
Store in a dry area. When transferring material into flammable solvents, use proper grounding to avoid electrical sparks. Product surface alterations caused by calcining or mixing with additives may alter toxicological properties.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:
8-hour Time Weighted Average (TWA); 15-minute Short-Term Exposure Limit (STEL)

OSHA: 6 mg/m^3 (total dust) TWA. 29 CFR 1910.1000 (Rev. 3/1/89).

ACGIH: 10 mg/m^3 (total amorphous dust) TWA. 3 mg/m^3 (respirable nuisance particulate) TWA.

RESPIRATORY PROTECTION: Use NIOSH approved dust filter respirator for exposure above permissible exposure limits. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

VENTILATION: General or local exhaust sufficient to maintain employee exposure below permissible exposure limits.

EYE AND FACE PROTECTION: If eye exposure to powder is likely, use tight fitting protective goggles.

PROTECTIVE GLOVES: Cloth. Leather. Rubber.

OTHER PROTECTIVE EQUIPMENT: Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132 (general requirements), .133 (eye and face protection), and .138 (hand protection).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: . . . . . NA
VAPOR DENSITY (Air=1): . . . . . NA
SPECIFIC GRAVITY (Water=1): . . . . NA
pH: . . . . . 6.5-7.3 (5% suspension)
FREEZING/MELTING POINT: . . . . . NA
SOLUBILITY (wt.% in water): . . . . . Essentially Insoluble
BULK DENSITY: . . . . . Variable
VOLUME % VOLATILE: . . . . . NA
VAPOR PRESSURE: . . . . . NONE
EVAPORATION RATE: . . . . . NA
HEAT OF SOLUTION: . . . . . NA
PHYSICAL STATE: . . . . . Powder

ODOR: . . . . . Odorless
COLOR: . . . . . White

10. STABILITY AND REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITY (CONDITIONS/MATERIALS TO AVOID):
High temperatures (>800C) treatment (calcining). Avoid alteration of product properties before use. Calcining, which may result in crystalline formation, or mixing with additives may alter toxicological properties.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:
None known.

11. TOXICOLOGICAL INFORMATION

ACUTE INHALATION LC50: . . Nuisance dust.
ACUTE DERMAL LD50: . . . . . NA
SKIN IRRITATION: . . . . . Mildly irritating.
EYE IRRITATION: . . . . . Mildly irritating.
ACUTE ORAL LD50: . . . . . Estimated >5 g/kg. Not significantly toxic.

CHRONIC EFFECTS/CARCINOGENICITY: This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

MEDICAL CONDITIONS AGGRAVATED: None known.

EFFECTS OF OVEREXPOSURE:

ACUTE: Excessive contact with powder can cause drying of mucous membranes of nose, eyes, and throat due to absorption of moisture and oils. This material can also cause nasal irritation and nosebleeds. Eye contact with powder can result in mild irritation.

CHRONIC: An epidemiological study was conducted which included 165 precipitated silica workers who had been exposed an average time span of 8.6 years. Of these 165 workers, 44 had been exposed for an average of 18 years. No adverse effects were noted in complete medical examinations (including chest roentgenograms) of these workers. Pulmonary function decrements were correlated only with smoking and age but not with the degree or duration of dust exposures.

Laboratory studies have also been conducted in small animals via inhalation to levels of precipitated silica dust of up to 126 mg/cu.m. per periods from six months to two years. Although precipitated silica was temporarily deposited in the animals' lungs, most of the deposited material was cleared soon after the dust exposure ended.

The results of all studies performed by, or known to, PPG indicate a very low order of pulmonary activity for synthetic precipitated silicas.

PPG recommends that persons with breathing problems or lung disease should not work in dusty areas unless a physician approves and certifies their fitness to wear respiratory protection.

IARC reviewed the data on amorphous silica in 1996 and concluded there was inadequate evidence from both epidemiology and experimental studies that amorphous silica is a carcinogenic risk factor. This organization concluded that amorphous silica is in Group 3.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

EC_0: >1000 ppm (daphnia magna) (24-hour acute immobilization test)
EC_0: >10,000 ppm (rainbow trout) (4-day static study)
EC_0: >10,000 ppm (freshwater fish) (96-hour static acute toxicity study)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Waste from this product may be disposed of in a sanitary landfill if state and local regulations permit. Care should be taken to avoid creation of dust during disposal operations.

14. TRANSPORT INFORMATION

USA DOT DESCRIPTION:
Proper Shipping Name: . . . . . Not regulated

15. REGULATORY INFORMATION

USA TSCA: This product is listed on the TSCA Inventory.
EUROPE EINECS: This product is listed on EINECS. (231-545-4)
CANADA DSL: This product is listed on the Canadian DSL.
AUSTRALIA AICS: This product is listed on AICS.
KOREA ECL: This product is listed on ECL. (1-1088)

JAPAN MITI (ENCS): This product is listed on MITI.

SARA TITLE III:
SARA (311, 312) Hazard Class: Acute Health Hazard.
SARA (313) Chemicals: Not listed.
SARA Section 302: Not listed as an Extremely Hazardous Substance.

CANADA REGULATIONS (WHMIS): NA

HAZARD RATING SYSTEM (HMIS/NFPA):
Health 1, Flammability 0 , Reactivity 0

16. OTHER INFORMATION

The following has been revised since the last issue of this MSDS:
Date. Edition. MSDS has been reformatted into 16 sections. Exposure limits updated in Section 8. Toxicity testing results have been added to Section 11. Ecotox data added to Section 12.

Previous revision date: 06/10/1994
Previous edition number: 009

NA = Not Available