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**Manufacturer's CAGE: 1P573**

# Material Safety Data Sheet

SPI **#05006-AB**, **#05006-GA**, **#05006-RA**, and **#05006-XK** **Carbon Paint**

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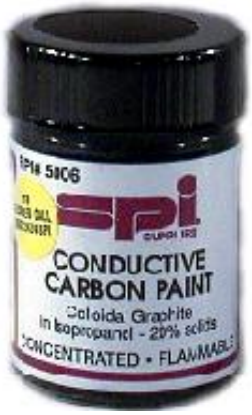
## Section 01 Identification




Date Effective..... June 7, 2010
(most recent revision)

Chemical Name/Synonyms... Mixture

Chemical family..... Graphite in isopropanol

**Emergencies**
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s.....
Worldwide phone : 1-(703)-527-3887
Worldwide FAX : 1-(703)-741-6090
Toll-free phone : 1-(800)-424-9300 USA only

Product or Trade Name.... SPI #05006-AB Carbon Paint

CAS #..... Mixture, see below for individual components

Chemical Formula..... Mixture

Main use..... Mounting of samples for scanning electron microscopy.

Secondary use: Where low level conductive paths are needed.

| | | | | |
|---|---|---|---|---|
| **Hazardous Material Information** | **Health** | **2** | **National Fire Protection** | |
| | **Fire Hazard** | **3** | | |

| | | | | |
|---|---|---|---|---|
| **System USA** | **Reactivity** | **0** | **Association USA** |  |
| | **Personal Protection** | | | |



NFPA
(National Fire Protection Association) Rating
(Scale 0-4) :
Health=2 Flammability=3 Reactivity Other=0

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## Section 02 Composition

**Carcinogenicity:**

| CAS Number | Ingredients | % | NTP | IARC | OSHA |
|---|---|---|---|---|---|
| 7782-42-5 | Graphite | < 30 | N | N | N |
| 107-98-2 | Propylene glycol methyl ether | < 5 | N | N | N |
| 71-36-3 | n-butyl alcohol | < 5 | N | N | N |
| 67-63-0 | Isopropanol | > 60 | N | N | N |
| | Proprietary thickener | < 5 | N | N | N |

**Occupational exposure limits:**

| CAS # | Ingredients | ACGIH TLV | OSHA PEL TWA |
|---|---|---|---|
| 7782-42-5 | Graphite | 2.00 $mg/m^3$ | 5.00 $mg/m^3$ |
| 107-98-2 | Propylene glycol methyl ether | 100 ppm | 100 ppm |
| 71-36-3 | n-butyl alcohol | 50 ppm | 50 ppm |
| 67-63-0 | Isopropanol | 400 ppm | 400 ppm |

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## Section 03: Physical and Chemical Properties - Hazards Overview

| | |
|---|---|
| Odor | Alcohol |
| Vapor pressure: | 33.00 mm Hg at 20° C/68° F |
| Vapor density: | 2.07 |
| Specific gravity: | 0.89 |
| Evaporation rate: | 2.9 |
| Solubility in water: | Soluble |
| Freezing point: | -88.8° C |
| pH: | Not available |
| Boiling point: | 82° C/179.6° F |
| VOC: | 710 g/l |

| | |
|---|---|
| Reduced VOC: | 779 g/l |
| Appearance: | Black viscous liquid |
| Autoignition | 398.8° C |
| Flash Point | 11.6° C (52.9°F) |

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## Section 4: Handling and Storage

Storage temperature: Ambient
Storage pressure: Atmospheric

Keep container or bottles tightly closed. Loosen closure cautiously before actually opening. Store in a cool and well ventilated place away from incompatible materials (See Stability and Reactivity Section 5).

Keep away from heat, sparks and flame. Protect the material from direct sunlight. Gound and bond containers when transferring material from one container to another. Empty containers may retain some or all of the hazardous properties. Follow all MSDS label warnings even after container is emptied.

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## Section 5: Stability and Reactivity

**General:**
This product is stable and hazardous polymerization will not occur.

**Incompatible Materials and Conditions to Avoid:**
Strong oxidizers, Aldehydes, Strong Acids, High Temperatures

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## Section 6: Hazards Identification

**Emergency Overview**
Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

**Ingestion**
Harmful if swallowed. May cause irritation of mouth, throat and digestive tract. May cause central nervous system depression.

**Eye Contact**
May cause moderate skin irritation.

**Skin Contact**
May cause moderate skin irritation.

**Other Skin Contact**
The components of this product are not expected to be absorbed through the skin.

**Inhalation**
Vapors and mists generated from this product may be harmful if inhaled. May cause respiratory irritation, headache, dizziness, fatigue, incoordination. Dusts generated from sanding and grinding on surfaces coated with this product may be harmful if inhaled. Special attention should be paid to this paragraph for SEM lab applications since mounts are often times "ground down" by grinding and/or polishing, leaving the graphite particles in the grinding/polishing media. Should the media dry out, and then disturbed, the dust could create an inhalation hazard.

**Chronic**
This product contains graphite which can accumulate in lung tissue after long-term exposure to the dust. The potential for such exposure from the use of this product is very limited.

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## Section 7: Exposure Controls/Personal Protection

**Engineering Controls:**
Eye wash equipment must be available to work station.
Provide sufficient mechanical ventilation to maintain exposure below TLV(s). Overexposures to vapors and mists may be prevented by ensuring ventilation controls. Local exhaust and/or fresh air entry. NIOSH/MSHA Sechedule TC-23C air purifying or a Schedule TC-19C air supplied respirator may also be used to reduce exposures. Read the manufacturer's instructions and literature carefully to determine the types of airborne contaminants(s) against which the respirator is effective and how it is to be properly fitted.

**Eye Protection**
Vapor tight chemical-type splash goggles should be worn when the possibility exists for eye contact due to splashing or spraying or liquid or the generation of airborne particles or vapors.

**Skin Protection**
Wear protective clothing, including an impermeable apron or disposable

suit and gloves. This protective equipment should be constructed of material(s) which are appropriate to prevent contact with the chemicals listed in the ingredient section of the MSDS.

Of course for the typical SEM application, for which this product has been specially formulated, the usual package is the small bottle with brush applicator top. Careful use of this product, as the product package was designed to be used, should be a pretty safe kind of activity in part because of the very small quantities involved and also the short time period for which the brush applicator top if off the bottle. Care should be taken to not "dribble" down the sides of the bottle any of the product, and if that should happen, then such product on the outside label should be cleaned off with a SPI Lint Free Cotton wiper (or equivalent). Wipers so contaminated should be disposed of according to institutional practices and policies.

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## Section 8: First Aid Measures

**Ingestion:**
If swallowed, do not induce vomiting

**Skin contact**
If excessive skin contact with this product occurs, flush immediately with plenty of water, followed by washing with soap and water. If clothing is contaminated with the product, remove clothing, and wash thoroughly to remove all signs of the black product before wearing. If the product residues persist, disposed of such contaminated clothing.

**Eye contact**
If this product is splashed into the eyes, flush eyes immediately with plenty of water for at least 15 minutes. Seek immediate medical attention.

**Inhalation**

If excessive amounts of vapors or mists from this product are inhaled, remove to fresh air. Apply artificial respiration and other supportive measures as required. Consult a pioson center, emergency room or long specialist for additional information and guidance.

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## Section 9: Fire Fighting Measures

Flash point and method: 52° F/11° C Pensky-Martens Tagliabue Closed Cup
Flammable limits:

| | |
|---|---|
| Upper Explosion Limit | 12.0%/vol |
| Lower Explosion Limit | 8.0%/vol |

**General hazard:**
This is a flammable/combustible material and could be ignited by heat, sparks or flames. Vapors may travel to a source of ignition and flash back. Container may explode in heat or fire. Vapor explosion hazard indoors, outdoors or in sewers. Runoff to sewer may create fire or explosion hazard. We do not belive such hazards are very likely when the product is in the small brush applicator cap and bottle.

**Fire**

Small fire fighting instructions:
Dry chemical, $CO_2$, water spray or fog,
alcohol-resistant foam. Do not use direct water stream on burning liquid.

Large fire fighting instructions:
Water spray, fog or alcohol-resistant foam. These instructions would be more applicable to wholesale bulk purchasers of SPI Carbon Paint suspension.

General fire fighting instructions:
Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, then withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. We believe this is not of much importance to uses of the little bottles of SPI Carbon Paint with brush applicator caps.

Firefighting equipment:
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing will provide limited protection.

Hazardous combustion or decomposition products:
Oxides of carbon, unknown hydrocarbons

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## Section 10: Accidental Release Measures

**Spills:**
Shut off ignition sources. There should be absolutely no flares, smoking, or flames in hazard area. Stop leak if you can do it without risk. Water spray may reduce vapor, but it may not prevent ignition in closed spaces. Isolate area until gas has dispersed.

**Small spills:**
Take up with sand other noncombustible absorbent material and place into containers for later disposal according to all local, state and federal

regulations.

**Large spills:**
Dike far ahead of liquid spill, pump up liquid as much as possible, then absorb remaining material with sand, sawdust, etc. Wash area with soap and water. Dispose of wastes and water in accordance with all local, state and federal regulations.

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## Section 11: Toxicological Information

| COMPONENT | TOXICITY | |
|---|---|---|
| Isopropanol | Oral LD50: Rat | 5045 mg/kg |
| | Oral LD50: Mouse | 3600 mg/kg |
| | Oral LD50: Dog | 4797 mg/kg |
| | Oral LD50: Rabbit | 6410 mg/kg |
| | Dermal LD50: Rabbit | 12800 mg/kg |
| | Inhalation LC50: Rat | 16000 ppm/4hr |
| | Inhalation LC50: Mouse | 12800 ppm/3hr |
| n-Butyl Alcohol | Oral LD50: Rat | 790 mg/kg |
| | Oral LD50: Mouse | 2680 mg/kg |
| | Oral LD50: Rabbit | 3484 mg/kg |
| | Dermal LD50: Rabbit | 3400 mg/kg |
| | Inhalation LC50: Rat | 8000 ppm/4hr |
| Propylene glycol methyl ether | Oral LD50: Rat | 6.6 g/kg |
| | Dermal LD50: Rabbit | 13 g/kg |
| | Inhalation LC50: Rat | 15000 ppm/4hr |

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## Section 12: Ecological Information

**Ecotoxicity:** Not harmful to aquatic organisms.

**Environmental Fate:** Soluble in water. Readily biodegradable.

**Bioaccumulation:** Not expected to occur.

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## Section 13: Disposal Considerations

This material is NOT classified as a hazardous material by RCRA. Use only licensed transporters and permitted disposal facilities and conform to all laws.

Recycle to process, if possible.

Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused materials, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

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## Section 14: Transport Information

**Proper Shipping Name:** Paint
**Label:** Flammable Liquid
**DOT Hazard Class:** 3
**UN/NA ID:** UN-1263
**Packing Group:** 2
**Marine Pollutant:** Not known

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## Section 15: Regulatory Information

TSCA: All components of this product are listed on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification Rule, they will be listed below.

TSCA 12(b) Component Listed under TSCA Section

SARA-Title 3, Section 313 Emissions Reporting Information (**40 CFR 372**)

This product contains a chemical which is listed in Section 313 at or above *de minimus* concentrations. The following listed chemicals are present:

| CAS Number | Description | % |
|---|---|---|
| 71-36-3 | n-butyl alcohol | < 5 |
| 67-63-0 | isopropanol | > 60 |

**California Prop. 65:**
Proposition 65 requires manufacturers or distributors of consumer products into the State of California to provide a warning statement if the product contains ingredients for which the State has found to cause cancer, birth defects or other reproductive harm. If this product contains an ingredient listed by the State of California to cause cancer or reproductive toxicity, it will be listed below:

No such materials found in this product.

## European/International Regulations

**Hazard Symbols:**
F: Highly Flammable

**Risk Phrases:**
R11 Highly flammable
R36 Irritating to eyes
R 67 Vapors may cause drowsiness and dizziness

**Safety Phrases:**
S2 Keep out of reach of children
S7 Keep container tightly closed
S9 Keep container in a well-ventilated place
S16 Keep away from sources of ignition - No smoking
S24/25 Avoid contact with skin & eyes
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

**WGK (Water Danger/Protection)**
67-63-0 : 1
71-36-3 : 1

**Canada - DSL/NDSL**
67-63-0 is listed on the DSL List
7782-42-5 is listed on the DSL List
71-36-3 is listed on the DSL List
107-98-2 is listed on the DSL List

**Canada - WHMIS**
This product has a WHMIS classification of B2, D2B

## Section 16: Other Information

If this product should be used in ways that are outside of the intended applications in scanning electron microscope laboratories, and if it is going to be formulated into some other system, so that it becomes just another component of that other system, read the MSDS sheets for the other components before blending as the resulting mixture may have the hazards of all of its parts.

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