

Safety Data Sheet

Section 1: Product and Company Identification

1.1 Product Identifiers:

Product Name: Polybrominated Diphenyl Ether (PBDE) Plate Kit

Product Code: 530045

1.2 Identified Use: Determination of Polybrominated Diphenyl Ether (PBDE) in samples. **Restrictions on Use:** For research use only.

1.3 Company: Abraxis, Inc., 124 Railroad Drive, Warminster, PA 18974 USA, info@abraxiskits.com +1(215) 357-3911, FAX +1(215) 357-5232

1.4 Emergency Telephone Number: +1(215) 357-3911

Section 2: Hazard(s) Identification

2.1 Classification of the mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225 Highly flammable liquid and vapor

Flammable liquids (Category 4), H227 Combustible liquid

Acute toxicity, Oral (Category 3), H301 Toxic if swallowed

Acute toxicity, Inhalation (Category 3), H331 Toxic if inhaled

Acute toxicity, Dermal (Category 3), H311 Toxic in contact with skin

Specific target organ toxicity - single exposure (Category 1), H370 Causes damage to organs

HMIS Rating: Methanol, CAS No. 67-56-1: Health hazard: 2, Chronic Health Hazard: *, Flammability: 3, Physical Hazard 0; Dimethyl sulfoxide,

CAS No. 67-68-5: Health hazard: 0, Chronic Health Hazard: *, Flammability: 2, Physical Hazard 0

NFPA Rating: Methanol, CAS No. 67-56-1: Health hazard: 2, Fire Hazard: 3, Reactivity Hazard: 0; Dimethyl sulfoxide, CAS No. 67-68-5: Health hazard: 0, Fire Hazard: 2, Reactivity Hazard: 0

2.2 GHS Label elements, including precautionary statements:

Pictogram(s)



Signal word(s): Danger, Warning

Hazard statement(s):

H225 Highly flammable liquid and vapor.

H227 Combustible liquid.

H301 + H311 + H331 Toxic if swallowed, in contact with skin, or if inhaled

H370 Causes damage to organs.

Precautionary statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe dust/fume/gas/mist/vapors/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/eye protection/face protection.

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.

P307 + P311 If exposed: Call a POISON CENTER or doctor/physician.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS: Readily absorbed through skin (DMSO)

2.4 Unknown acute toxicity: None known.

Section 3: Composition / Information on Ingredients

3.2 Mixtures: Mixture(s) of the hazardous substance(s) listed below, with nonhazardous additions.

Hazardous component(s):

Name and Synonym(s): Methyl alcohol, MeOH, Methanol Formula: CH₄O Molecular weight: 32.04 g/mol

CAS No.: 67-56-1 EC-No.: 200-659-6

Classification: Flammable Liquid 2, Acute Toxicity 3; STOT SE 1; H225, H301 + H311 + H331, H370

Percentage in Mixture: 3.7 %

Name and Synonym(s): DMSO, Dimethyl sulfoxide, Methyl sulfoxide Formula: C₂H₆OS Molecular weight: 78.13 g/mol

CAS No.: 67-68-5 EC-No.: 200-664-3

Classification: Flammable Liquid 4; H227

Percentage in Mixture: 4.3 %

For full text of H-Statements mentioned in this Section, see Section 2.

Section 4: First Aid Measures

4.1 Description of first aid measures: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed: No data available. Treat symptomatically.

Section 5: Fire-fighting Measures

5.1 Suitable extinguishing media: Dry powder or sand **Unsuitable extinguishing media:** Do NOT use water jet

5.2 Special hazards arising from the substance or mixture: Carbon oxides, Sulfur oxides

5.3 Advice for firefighters: Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4 Further information: Use water spray to cool unopened containers.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment (see section 8). Avoid dust formation. Avoid breathing vapors, mist, dust, or gas. Ensure adequate ventilation. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Remove all sources of ignition. Evacuate personnel to safe areas.

6.2 Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up: Contain spillage. Solids (if applicable): Pick up and arrange disposal without creating dust. Sweep up and shovel. Liquids (if applicable): Absorb with non-combustible liquid-binding material (sand, earth, diatomite, vermiculite). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For information on safe handling see section 7. For information on personal protection see section 8. For information on disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling: See section 2. Avoid inhalation of vapors or mist, and avoid contact with skin and eyes. Wear appropriate personal protective equipment. Use explosion-proof equipment. Keep away from sources of ignition. Do not eat, drink, or smoke in work area. Take measures to prevent the buildup of electrostatic charge.

7.2 Precautions for safe storage: Keep container(s) tightly closed in a dry, well-ventilated place. Protect from physical damage. Opened containers must be carefully resealed and kept upright to prevent leakage. See label or product insert for appropriate storage temperature and additional specific information. Storage class (TRGS 510): Flammable liquids, Combustible liquids.

7.3 Specific end use(s): Other than use(s) specified in section 1, no other uses are stipulated.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Component(s) with workplace control parameters

Methanol, CAS No. 67-56-1

Value	Control parameters	Basis
TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI section) Danger of cutaneous absorption		
STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI section) Danger of cutaneous absorption		
TWA	200.000000 ppm; 260.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption		
ST	250.000000 ppm; 325.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption		
TWA	200.000000 ppm; 260.000000 mg/m ³	USA. Occupational Exposure Limits; (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m ³ is approximate		
TWA	200 ppm; 260 mg/m ³	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption		
ST	250 ppm; 325 mg/m ³	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption		
TWA	200 ppm; 260 mg/m ³	USA. Occupational Exposure Limits; (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m ³ is approximate		
STEL	250 ppm; 325 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Skin notation		
TWA	200 ppm; 260 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Skin notation		

Dimethyl sulfoxide, CAS No. 67-68-5

Value	Control parameters	Basis
TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Biological occupational exposure limits

Methanol, CAS No. 67-56-1

Parameters	Value	Biological specimen	Basis
Methanol	15.0000 mg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
End of shift (As soon as possible after exposure ceases)			

Derived No Effect Level (DNEL)

Methanol, CAS No. 67-56-1

Application area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects, Acute systemic effects	40mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects, Acute systemic effects	8mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects, Acute systemic effects	8mg/kg BW/d
Workers	Inhalation	Acute systemic effects, Acute local effects, Long-term systemic effects, Long-term local effects	260 mg/m ³

Consumers	Inhalation	Acute systemic effects, Acute local effects, Long-term systemic effects, Long-term local effects	50 mg/m ³
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Predicted No Effect Concentration (PNEC)

Methanol, CAS No. 67-56-1

Compartment	Value
Soil	23.5 mg/kg
Marine water	15.4 mg/l
Fresh water	154 mg/l
Fresh water sediment	570.4 mg/kg
Onsite sewage treatment plant	100 mg/kg

8.2 Exposure controls:

Appropriate engineering controls: Provide adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Keep away from food and beverages.

Personal protective equipment

Eye protection: Use equipment for eye protection with side shields tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection: Handle with chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection: Do not breathe the vapors. Use a chemical fume hood or approved respiratory protection equipment.

Body protection: Lightweight, protective clothing to prevent skin exposure.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties of mixture

Appearance: Multiple

Odor: Characteristic

Odor Threshold: No data available

pH: Multiple

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: No data available

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor pressure: No data available

Vapor density: No data available

Relative density: No data available

Water solubility: Various

Partition coefficient: n-octanol/water: No data available

Auto-ignition temperature: Not applicable

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

9.2 Other information: No data available

Section 10: Stability and Reactivity

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions: No data available

10.4 Conditions to avoid: Keep away from open flame, hot surfaces, heat sources, and sources of ignition.

10.5 Incompatible materials: Acid chlorides, acid anhydrides, strong oxidizing agents, alkali metals, strong reducing agents, acids, peroxides, phosphorus halides

10.6 Hazardous decomposition products: No data available. In the event of fire: see section 5.

Section 11: Toxicological Information

11.1 Information on toxicological effects

To the best of our knowledge, the chemical, physical, and toxicological properties of this product have not been thoroughly investigated.

Acute toxicity (Methanol, CAS No. 67-56-1):

Inhalation LC50 Inhalation - Rat - 4 h - 128.2 mg/l; LC50 Inhalation - Rat - 6 h - 87.6 mg/l; LD50 Dermal - Rabbit - 17,100 mg/kg

Ingestion LDLO Oral - Human - 143 mg/kg (Lungs, Thorax, or Respiration:Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea); LD50 Oral - Rat - 1,187 - 2,769 mg/kg

Skin contact Rabbit skin—no irritation; **Eye contact** Rabbit eye—no irritation

Respiratory or skin sensitization Maximization Test (GPMT)(OECD Test Guideline 406)--Guinea pig--does not cause skin sensitization; **Aspiration hazard** No data available

Acute toxicity (Dimethyl sulfoxide, CAS No. 67-68-5):

Inhalation LC50 Inhalation - Rat - 4 h - 40250 ppm

Ingestion LD50 Oral - Rat - 14,500 mg/kg

Skin contact LD50 Dermal - Rabbit - > 5,000 mg/kg; mild skin irritation; **Eye contact** No data available

Respiratory or skin sensitization No data available; **Aspiration hazard** No data available

Mutagenicity (Methanol, CAS No. 67-56-1): Ames test (*S. typhimurium*)--Result: negative; *in vitro* assay (fibroblasts)--Result: negative; *in vivo* mammalian bone-marrow cytogenetic test, chromosomal analysis (mouse, male and female)--Result: negative

Mutagenicity (Dimethyl sulfoxide, CAS No. 67-68-5): Cytogenetic analysis (Mouse lymphocyte, Rat)--Result: mutation, DNA damage in mammalian somatic cells

Carcinogenicity:

(Dimethyl sulfoxide, CAS No. 67-68-5): Rat (oral)—Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors. Mouse (oral)—Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukemia Skin and Appendages: Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Teratogenicity: No data available

Reproductive/fertility toxicity:

(Dimethyl sulfoxide, CAS No. 67-68-5): Reproductive toxicity (Rat, intraperitoneal and subcutaneous)--Effects on Fertility: Abortion; post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants); litter size (e.g., # fetuses per litter; measured before birth).

Reproductive toxicity (Mouse, oral)--Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity (Mouse, intraperitoneal)--Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity, single exposure (Methanol, CAS No. 67-56-1): Causes damage to organs; (Dimethyl sulfoxide, CAS No. 67-68-5): No data available

Specific target organ toxicity, repeated exposure: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Additional information (Methanol, CAS No. 67-56-1): RTECS: PC1400000 Effects due to ingestion may include headache, dizziness, drowsiness, metabolic acidosis, coma, seizures. Methanol may be fatal or cause blindness if swallowed. Stomach - Irregularities - Based on Human Evidence

(Dimethyl sulfoxide, CAS No. 67-68-5): RTECS: PV6210000 Exposure to large amounts can cause redness of skin, itching, burning, sedation, headache, nausea, dizziness. Eyes - Eye disease - Based on Human Evidence

Section 12: Ecological Information

12.1 Toxicity: (Dimethyl sulfoxide, CAS No. 67-68-5) Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h; LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h. Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h (OECD Test Guideline 202). Toxicity to algae EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability: Methanol is readily biodegradable. Dimethyl sulfoxide result: 31 %, not readily biodegradable (OECD Test Guideline 301D)

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment: No data available

12.6 Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Product: All waste must be handled and disposed according to local, state, and federal regulations. Avoid disposing large volumes in sewer.

Contaminated packaging: All waste must be handled and disposed according to local, state, and federal regulations.

Refer to sections 7 and 8 for safe handling guidance.

Section 14: Transport Information

DOT, Land Transport ADR/RID (cross-border), Maritime Transport IMDG, Air Transport ICAO-TI and IATA-DGR

UN Number: 3316

UN Proper shipping name: Chemical Kit, (contains Methanol and DMSO)

Transport hazard class(es): 9

Packing group: III

Environmental hazard: See section 12

Bulk transport: Excepted/Limited quantity

Special considerations: See section 7 for handling

Section 15: Regulatory Information

EU Regulations, Hazard Symbol(s): Methanol: T (Toxic), F (Flammable); Dimethyl sulfoxide: Xi (Irritant)

Safety Phrases:

Methanol: S 7 / 16 / 36 / 37 / 45, Keep container tightly closed. Keep away from sources of ignition, no smoking. Wear suitable protective clothing and gloves. In case of accident or if you become ill, seek medical advice immediately (show product label). Dimethyl sulfoxide: S 24/25
Avoid contact with skin and eyes

SARA Title III, Section 313 Components: Methanol, CAS No. 67-56-1

SARA 311/312 Hazards: Methanol, CAS No. 67-56-1: Fire Hazard, Acute Health Hazard, Chronic Health Hazard. Dimethyl sulfoxide, CAS No. 67-68-5: Fire Hazard, Chronic Health Hazard

State Right-to-Know

Massachusetts: Methanol, CAS No. 67-56-1

Pennsylvania: Methanol, CAS No. 67-56-1; Dimethyl sulfoxide, CAS No. 67-68-5

New Jersey: Methanol, CAS No. 67-56-1; Dimethyl sulfoxide, CAS No. 67-68-5

California Prop. 65 Components: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Methanol, CAS No. 67-56-1

Section 16: Other information

This information is based on our present knowledge. While Abraxis, Inc. believes that the data contained herein are factual and the opinions expressed represent a best effort to present accurate information, the data are not to be taken as a warranty or representation for which Abraxis, Inc. assumes legal responsibility. The information shall not be taken as being all-inclusive and is to be used only as a guide. The data are offered solely for the user's consideration, investigation, and verification. These suggestions should not be confused with either state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.

All materials and mixtures may present unknown hazards and should be used with caution. Since Abraxis, Inc. cannot control the methods, volumes, or conditions of use of this product, Abraxis, Inc. shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. An individual technically qualified to handle potentially hazardous chemicals must supervise the use of this material. This product is sold for research use only. It is not for any human or animal therapeutic or clinical diagnostic use.

Date this SDS was prepared: 5/24/2016

Version: 3

Changes from previous version: Abraxis, LLC changed to Abraxis, Inc.