Cyclodienes

• Intended Use

For the detection and quantitation of cyclodienes in water (groundwater, surface water, well water). For soil, and other sample matrices contact the company for application bulletins and/or specific matrix validation guidelines.

• Principle

The Abraxis Cyclodienes Kit applies the principles of enzyme linked immunosorbent assay (ELISA) to the determination of cyclodienes. The test is an indirect competitive ELISA. The sample (please refer to reagent preparation section) to be tested, along with an antibody specific for cyclodienes are added to microtiter wells containing an immobilized cyclodiene-protein analogue. At this point a competitive reaction occurs between the cyclodienes which may be be in the sample and the immobilized cyclodienes analogue for the antibody binding sites. The reaction is allowed to continue for sixty (60) minutes. After a washing step, a second antibody-HRP label is added and incubated for thirty (30) minutes. After a washing step and addition of the substrate (color soution), a color signal (blue color) is generated. The color reaction is stopped and stabilized after twenty (20) minutes by the addition of diluted acid (stopping solution). The color is then evaluated using an ELISA reader. **The intensity of the yellow color is inversely proportional to the concentration of the cyclodienes present in the sample**.

• Reagents

The Abraxis Cyclodienes Kit contains the following items:

1. Microtiter Plate coated with an analogue of Cyclodiene conjugated to a protein.
Immobilized Cyclodiene analogue conjugated to a protein.
96 test kit: 12 X 8 strips

2. Cyclodiene Antibody Solution
Rabbit anti-cyclodiene solution in a colored buffered saline solution with preservative and stabilizers.
96 test kit: one 11 mL vial

3. Cyclodienes Standards
Dieldrin standard stock at a concentration of 250 ng/mL in methanol. **See reagent preparation section.**
96 test kit: one 1 mL vial

4. Anti-Rabbit-HRP Enzyme Conjugate
Horseradish peroxidase (HRP) labeled anti-rabbit diluted in a buffered solution with preservative and stabilizers.
96 test kit: one 11 mL vial

5. Diluent/Zero Standard
25% methanol in distilled water (v/v) without any detectable cyclodienes.
96 test kit: one 30 mL vial

6. Color Solution
A solution of hydrogen peroxide and 3,3',5,5'-tetramethylbenzidine in an organic base.
96 test kit: one 11 mL vial

7. Stopping Solution
A solution of diluted acid.
96 test kit: one 6 mL vial

8. Washing Buffer 5X Concentrate
Buffer salts with detergent and preservatives.
96 test kit: one 100 mL vial

• Reagent Storage and Stability

Store all reagents at 2-8°C. Do not freeze. Reagents may be used until the expiration date on the box.

Consult state, local and federal regulations for proper disposal of all reagents.

• Materials Required but Not Provided

In addition to the reagents provided, the following items are essential for the performance of the test:

1. Micro Pipettes* Precision pipets capable of delivering 25, 50,100, and 250 uL, and tips.
2. Vortex Mixer* Thermolyne Maxi Mix, Scientific Industries Vortex Genie, or Equivalent.
3. Plate reader* capable of readings at 450 nm.
4. Distilled or deionized water.
5. Methanol, reagent grade.
6. Transfer pipettes, 5 mL
7. Disposable glass tubes or glass vials with Teflon caps.
8. Parafilm.

* Please contact Abraxis for supplier information.

• Sample Information

Refer to sample preparation information contained under individual procedure (i.e. water) or application notes.

Samples containing gross particulate matter should be filtered (e.g. 0.2 um Anotop™ 25 Plus, Whatman, Inc.) to remove particles.

Samples which have been preserved with monochloroacetic acid or other acids, should be neutralized with strong base e.g. 6N NaOH, prior to assay.

If the cyclodienes concentration of a sample exceeds 25 ppb, the sample is subject to repeat testing using a diluted sample. A ten-fold or greater dilution of the sample is recommended with an appropriate amount of Diluent/Zero Standard or Sample Diluent. For example, in a separate glass test tube make a ten-fold dilution by adding 100 uL of the sample to 900 uL of Diluent/Zero Standard. Mix thoroughly before assaying. Perform the assay according to the Assay Procedure and obtain final results by multiplying the value obtain by the dilution factor e.g. 10.

• Reagent Preparation

All reagents must be allowed to come to room temperature.

Cyclodienes tend to absorb to surfaces, therefore sample dilutions should be prepared fresh before use in disposable glass tubes or glass vials.

Standards:

A reasonable Standard dilution scheme:

Std. Concentration (ppb)	Standard Diluent (mL)	Dieldrin Stock (250 ppb) to Add (uL)
25	0.900	100
10	0.960	40
5	0.980	20
2.5	0.900	100 uLof **25 ppb std.**
1.0	0.900	100 uL of **10 ppb std.**
0.50	0.900	100 uL of **5 ppb Std.**
0.25	0.900	100 uL of **2.5 ppb Std.**
0	1.000	0

Samples to be analyzed:

At collection time and prior to analysis, each sample needs to be diluted in methanol to obtain a methanol concentration of 25% (v/v), as follows: add 50 uL of methanol to a disposable test tube, add 150 uL of sample and vortex gently. Cover sample with parafilm until use.

Wash Buffer

In a 1000 mL container, dilute the wash buffer concentrate 1:5 by the addition of deionized or distilled water (i.e. 100 mL of wash buffer 5X concentrate plus 400 mL of water.

• Procedural Notes and Precautions

As with all immunoassays, a consistent technique is the key to optimal performance. To obtain the greatest precision, be sure to treat each well in an identical manner.

Add reagents directly to the bottom of the well while **avoiding contact between the reagents and the pipet tip**. This will help assure consistent quantities of reagent in the test mixture.

Avoid cross-contaminations and carryover of reagents by using clean pipets for each sample addition and by avoiding contact between reagent droplets on the tubes and pipet tips.

Do not use any reagents beyond their stated shelf life.

Avoid contact of Stopping Solution (diluted sulfuric acid) with skin and mucous membranes. If this reagent comes in contact with skin, wash with water.

The microtiter plate consists of 8 strips of 12 wells, when you use fewer than 8 strips, remove the unneeded strips and store them refrigerated in the re-sealable bag (with dessicant) provided.

If more than three strips are being used per run, it is recommended that a multi-channel pipette be used for the addition of antibody, conjugate, color, and stopping solution.

• Limitations

The Abraxis Cyclodienes Assay will detect dieldrin and related cyclodienes to different degrees. Refer to specificity table for data on several of the cyclodienes. The Abraxis Cyclodienes Assay kit provides screening results. As with any analytical technique (GC, HPLC, etc...) positive results requiring some action should be confirmed by an alternative method.

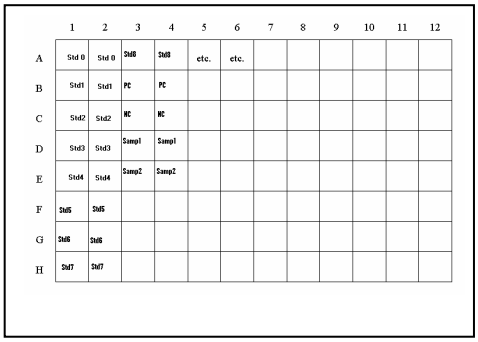
• Quality Control

Control solutions (negative and positive solution) of cyclodienes should be assayed with each run. It is recommended that they be included in every run and treated in the same manner as unknown samples. Acceptable limits should be established by each laboratory.

• Assay Procedure

Read Reagent Preparation, Procedural Notes and Precautions before proceeding.

St1-St 8: Standards
NC: Negative Control (standard 1)
PC: Positive Control (supplied by lab)
Samp1-Sx: Samples



1. Add 25 uL of the appropriate standard, control, or sample. We recommend using duplicates or triplicates.
2. Add 100 uL of Cyclodienes antibody solution successively to each well. Cover the wells with parafilm or tape and mix the contents by moving the strip holder in a circular motion on the benchtop. Be careful not to spill the contents. Incubate at room temperature for 60 minutes.
3. After the incubation, remove the covering and vigorously shake the contents of the wells into a container. Wash the strips 3 times using the 1X wash solution with a volume of at least 250 uL per each wash step. Any remaining buffer in the wells should be removed by patting the plate on a dry stack of paper towels.
4. Add 100 uL of enzyme conjugate solution to the individual wells successively. Cover the wells with parafilm or tape and mix the contents by moving the strip holder in a circular motion on the benchtop. Be careful not to spill the contents. Incubate at room temperature for 30 minutes.
5. After the incubation, remove the covering and vigorously shake the contents of the wells into a container. Wash the strips 3 times using the 1X wash solution with a volume of at least 250 uL per each wash step. Any remaining buffer in the wells should be removed by patting the plate on a dry stack of paper towels.
6. Add 100 uL of color solution successively to each well. Incubate for 20 minutes.
7. Add 50 uL of Stopping Solution to each well in the same sequence as for the other reagents.
8. Read absorbance using a microplate reader at 450 nm within 15 minutes after adding the Stopping Solution.

• Results

The evaluation of the ELISA can be performed using commercial ELISA evaluation programs (Logit/Log or alternatively point to point). For a manual evaluation, calculate the mean absorbance value for each of the standards. Calculate the % B/Bo for each standard by dividing the mean absorbance value for the zero standard (Standard 1). Construct a standard curve by plotting the %B/Bo for each standard on a the vertical (y) axis versus the corresponding dieldrin concentration on the horizontal (x) axis on a graph paper. Calculate the %B/Bo for each control and sample(s) and obtain concentration by interpolation using the constructed standard curve. **The results obtained will then need to be multiplied by 1.25 to account for the intial sample dilution (methanol addition).**

Samples exhibiting a lower concentration than 0.25 ppb are considered to be negative. Samples exhibiting a higher concentration than 25 ppb must be diluted to obtain accurate results.

• Performance Data

Precision
The following results were obtained:

Control	1	2	3
Replicates	5	5	5
Days	3	3	3
n	15	15	15
Mean (ppb)	1.05	2.49	7.23
% CV (within assay)	10.2	11.2	7.0
% CV (between assay)	14.5	18.6	9.3

Sensitivity
The Abraxis Cyclodienes Assay has an estimated minimum detectable concentration, based on a 90% B/Bo of 100 ppt.

Recovery
Five (5) groundwater samples, were spiked with various levels of cyclodienes and then assayed using the Abraxis Cyclodienes Assay. The following results were obtained:

Amount of Cyclodienes Added (ppb)	Recovery Mean (ppb)	Recovery S.D. (ppb)	Recovery %
2.5	2.25	0.39	90
5.0	4.75	0.89	95
10.0	8.61	0.96	86
Average			90

Specificity
The cross-reactivity of the Abraxis Cyclodienes Assay for various cyclodiene analogues can be expressed as the 50% inhibition of each cyclodiene analogue divided by the 50% inhibition of dieldrin.

Compound	Cross-reactivity (%)
Dieldrin	100
Endosulfan	150
Heptachlor	58
Aldrin	26
Chlordane	26
Toxaphene	8.2

The following compounds demonstrated no reactivity in the Abraxis Cyclodienes Assay at concentrations up to 1000 ppb: aldicarb, aldicarb sulfoxide, aldicarb sulfone, alachlor, atrazine, benomyl, butachlor, butylate, captan, carbaryl, carbendazim, carbofuran, 2,4-D, 1,3-dichloropropene, dinoseb, MCPA, metolachlor, metribuzin, pentachlorophenol, picloram, propachlor, terbufos, thiabendazole, and thiophanate-methyl.

• Ordering informattion

Abraxis Cyclodienes Assay Kit 100T	PN 540021
Sample Diluent	PN 500022
Standard Stock (additional)	PN 500023

• Assistance

For ordering or technical assistance contact:

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Road No. 44, Pitampura, Delhi – 110034, India
Mobile: +91-98105-21400, Tel: +91-11-42208000, 8111, 8222, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com, www.atzlabs.com ; www.lifetechindia.com

Phone: (215) 357-3911 * Fax: (215) 357-5232
Email: info@abraxiskits.com
WEB: www.abraxiskits.com

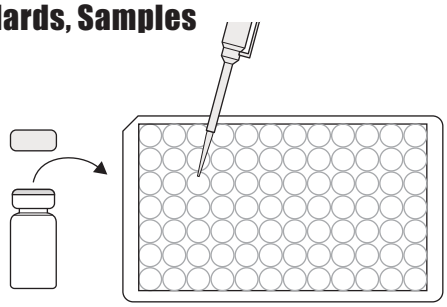
• General Limited Warranty

Abraxis LLC warrants the products manufactured by the Company, against defects and workmanship when used in accordance with the applicable instructions for a period not to extend beyond the product's printed expiration date. **Abraxis makes no other warranty, expressed or implied. There is no warranty of merchantability or fitness for a particular purpose.**

Cyclodienes Plate, Concise ELISA Procedure

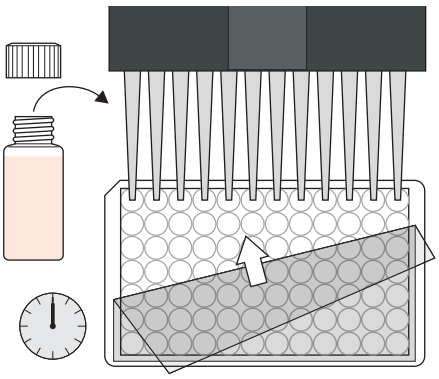
1. Addition of Standards, Samples

Add 25 uL of standard solutions, control or samples.



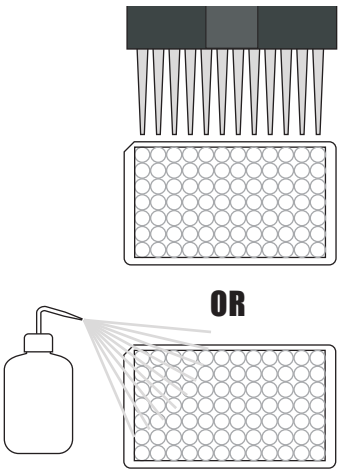
2. Addition of Antibody Solution

Add 100 uL of antibody solution. Cover and mix for 30 seconds by rotating on benchtop. Incubate for 60 minutes at room temperature.



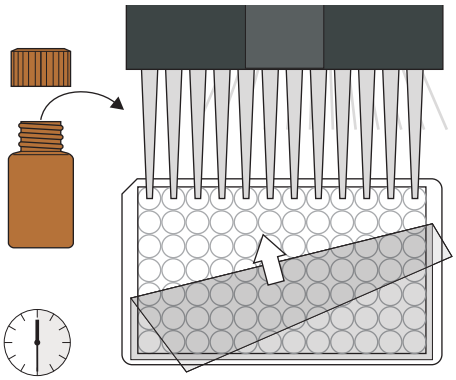
3. Washing of Plates

Wash the plates three times with 250 uL of diluted 1X washing buffer.



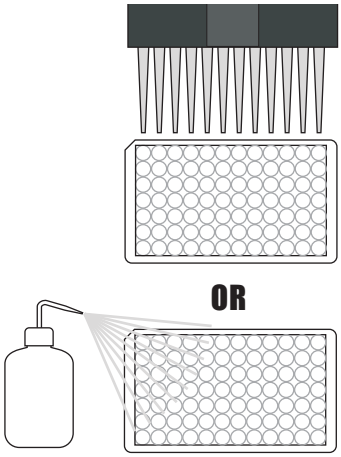
4. Addition of Enyzme Conjugate

Add 100 uL of the enzyme conjugate. Cover and mix for 30 seconds by rotating on benchtop. Incubate for 30 minutes at room temperature.



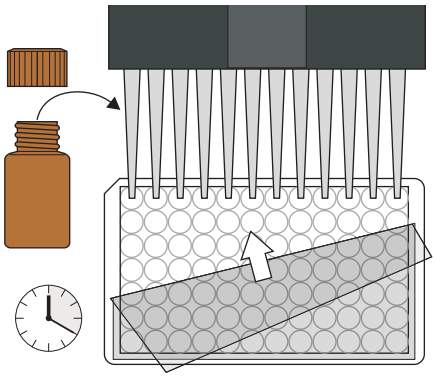
5. Washing of Plates

Wash the plates four times with 250 uL of diluted 1X washing buffer.



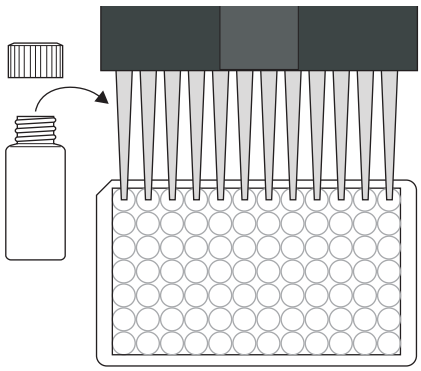
6. Addition of Substrate/Color Solution

Add 100 uL of substrate/color solution. Incubate 20 minutes at room temperature and away from direct sunlight.



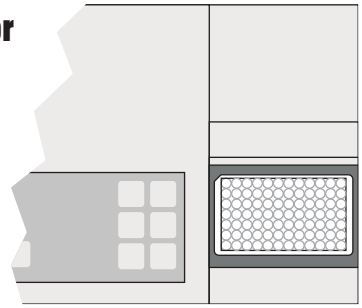
7. Addition of Stopping Solution

Add 50 uL of stop solution.



8. Measurement of Color

Measure color at 450 nm. Calculate results.



India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Road No. 44, Pitampura, Delhi – 110034, India

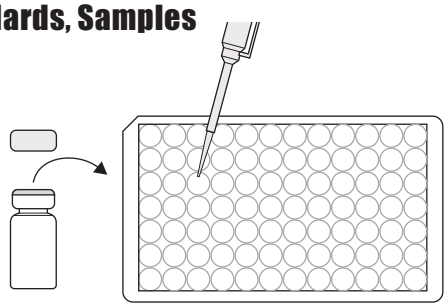
Mobile: +91-98105-21400, Tel: +91-11-42208000, 8111, 8222, Fax: +91-11-42208444

Email: customerservice@lifetechindia.com, www.atzlabs.com ; www.lifetechindia.com

Cyclodienes Plate, Detailed ELISA Procedure

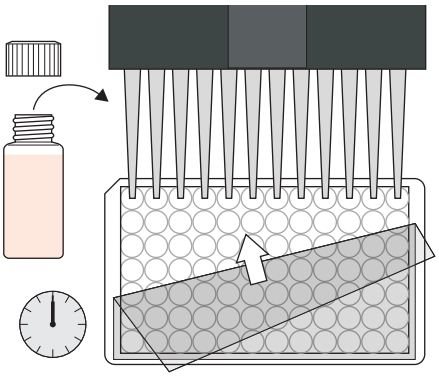
1. Addition of Standards, Samples

Add 25 uL of the standard solutions, control or samples into the wells of the test strips according to the working scheme given. We recommend using duplicates or triplicates.



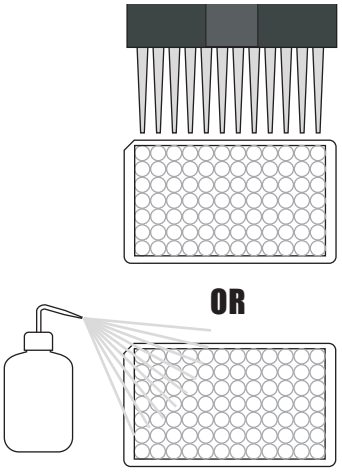
2. Addition of Antibody Solution

Add 100 uL of the antibody solution to the individual wells successively using a multi-channel pipette. Cover the wells with parafilm or tape and mix the contents by moving the strip holder in a rapid circular motion on the benchtop. Be careful not to spill contents. Incubate the strips for 60 min at room temperature.



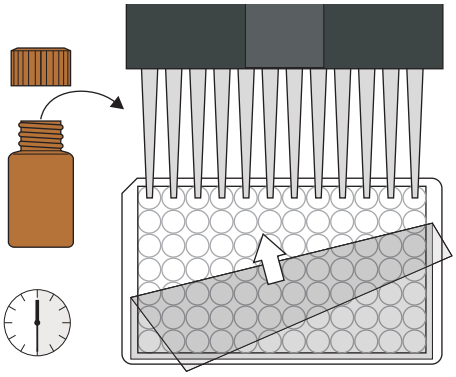
3. Washing of Plates

After incubation, remove the covering and vigorously shake the contents of the wells into a sink. Wash the strips three times with a multi-channel pipette or wash bottle using the diluted 1X washing buffer solution. Please use at least a volume of 250 uL of washing buffer for each well and each washing step. Remaining buffer in the wells should be removed by patting the plate dry on a stack of paper towels.



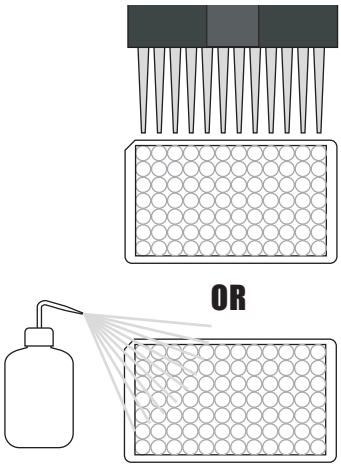
4. Addition of Enyzme Conjugate

Add 100 uL of the enzyme conjugate to the individual wells successively using a multi- channel pipette or a stepping pipette. Incubate the strips for 30 minutes at room temperature.



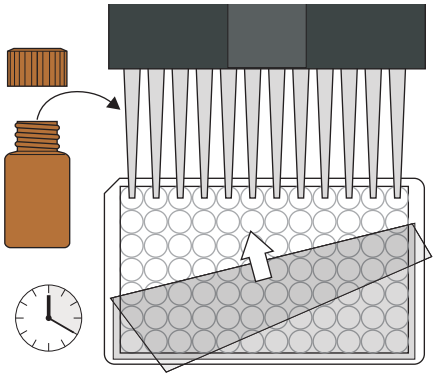
5. Washing of Plates

After incubation, remove the covering and vigorously shake the contents of the wells into a sink. Wash the strips four times with a multi-channel pipette or wash bottle using the diluted 1X washing buffer solution. Please use at least a volume of 250 uL of washing buffer for each well and each washing step. Remaining buffer in the wells should be removed by patting the plate dry on a stack of paper towels.



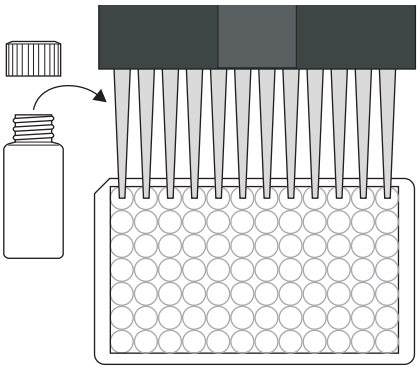
6. Addition of Substrate/Color Solution

Add 100 uL of substrate/color solution to the individual wells successively using a multi-channel pipette or a stepping pipette. Cover the wells with parafilm or tape and mix the contents by moving the strip holder in a rapid circular motion on the benchtop. Be careful not to spill contents. Incubate the strips for 20 min at room temperature.



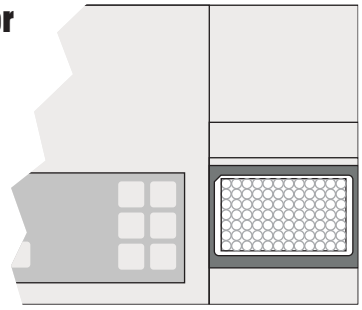
7. Addition of Stopping Solution

Add 50 uL of stop solution to the wells in the same sequence as for the substrate solution using a multi- channel pipette or a stepping pipette.



8. Measurement of Color

Read the absorbance at 450 nm using a microplate ELISA reader. Calculate results.



India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Road No. 44, Pitampura, Delhi – 110034, India

Mobile: +91-98105-21400, Tel: +91-11-42208000, 8111, 8222, Fax: +91-11-42208444

Email: customerservice@lifetechindia.com, www.atzlabs.com ; www.lifetechindia.com

Safety Data Sheet

Section 1: Product and Company Identification

1.1 Product Identifiers:
Product Name: Cyclodienes ELISA Plate Kit
Product Code: 540021
1.2 Identified Use: Determination of Cyclodienes 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
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: Health hazard: 2, Chronic Health Hazard: *, Flammability: 3, Physical Hazard 0
NFPA Rating: Health hazard: 2, Fire Hazard: 3, Reactivity Hazard: 0
2.2 GHS Label elements, including precautionary statements:
Pictogram(s)

Signal word: Danger
Hazard statement(s):
H225 Highly flammable liquid and vapor.
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: None known.
2.4 Unknown acute toxicity: None known.

Section 3: Composition / Information on Ingredients

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

Hazardous component(s):
Name and Synonym(s): Methyl alcohol, MeOH, Methanol Formula: CH_4O 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: 4.92 %
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
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. 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.
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/m3 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/m3 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		

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

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 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: 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, reducing agents, acids, peroxides
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

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

Carcinogenicity:
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: Damage to fetus not classifiable
Specific target organ toxicity, single exposure (Methanol, CAS No. 67-56-1)**:** Causes damage to organs
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

Section 12: Ecological Information

12.1 Toxicity: No data available
12.2 Persistence and degradability: Readily biodegradable
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)
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)
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).
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
State Right-to-Know
Massachusetts: Methanol, CAS No. 67-56-1
Pennsylvania: Methanol, CAS No. 67-56-1
New Jersey: Methanol, CAS No. 67-56-1
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: 5/20/2016
Version: 3
Changes from previous version: Abraxis, LLC changed to Abraxis, Inc.