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Abraxis Avermectins Plate Kit
For Analysis of Ivermectin, Abamectin, and Dormectin

Cat. # 5142B

Instructional Booklet
Read Completely Before Use.

INTENDED USE

The Abraxis Avermectins Plate Kit is a competitive ELISA for the quantitative analysis of Avermectins in honey products.

ASSAY PRINCIPLES

The Abraxis Avermectins plate kit is a competitive enzyme-labeled immunoassay. Avermectins is extracted from a sample by blending or shaking with extraction solution. The sample extract and calibrators are pipetted into the test wells followed by Avermectins-HRP conjugate solution. An Avermectins antibody solution is then added into the test wells to initiate the reaction. During the 30 minute incubation period, Avermectins from the sample and Avermectins HRP conjugate compete for binding to Avermectins antibody. The Avermectin antibodies are bound by a second antibody immobilized on the microtiter plate wells. Following a 30 minute incubation, the contents of the wells are removed and the wells are washed to remove any unbound Avermectins, and Avermectins HRP conjugate. A clear substrate is then added to the wells and any bound enzyme conjugate causes the conversion to a blue color. Following a 30 minute incubation, the reaction is stopped and the amount of color in each well is read. The color of the unknown samples is compared to the color of the calibrators and the Avermectins concentration of the samples is derived by interpolation using a standard curve constructed with each run.

SPECIFICITY:

The Abraxis Avermectins Plate Kit can not differentiate between the various Avermectinss, but detects their presence to differing degrees. The following table shows the % cross reactivity of Ivermectin and Dormectin versus Abamectin. All concentrations are in parts per billion (ppb).

Compound	% CR
Abamectin	**100%**
Ivermectin	**61%**
Dormectin	**32%**

DETECTION LIMIT:

Honey: 20 ppb

REAGENTS AND MATERIALS PROVIDED

The kit in its original packaging can be used until the end of the month indicated on the box label when stored at 2 – 8ºC.

- Plate containing 12 test strips of 8 wells each vacuum-packed in aluminized pouch with indicating dessicant.
- Abamectin calibrators (6) corresponding to 0, 0.185, 0.560, 1.7, 5, 15 µg/L (ppb) of Abamectin.
- 1 vial containing 7 mL Avermectins HRP Enzyme Conjugate.
- 1 vial containing 7 mL of Polyclonal anti-Avermectins antibody.
- 1 bottle containing 100 mL of Wash Solution (5X). It must be diluted with 400 mL of deionized water before use.
- 1 vial containing 14 mL of Substrate.
- 1 vial containing 14 mL of Stop Solution. (Caution! 1N HCl. Handle with care.)
- Instructions

PRECAUTIONS

1. Each reagent is optimized for use in the Abraxis Avermectins Plate Kit. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other Abraxis Avermectins Plate Kits with different Lot numbers.

2. Dilution or adulteration of reagents or samples not called for in the procedure may result in inaccurate results.

3. Do not use reagents after expiration date.

4. Reagents should be brought to room temperature, 20 – 28ºC (62 – 82ºF) prior to use. Avoid prolonged (> 24 hours) storage at room temperature.

5. Avermectins are antibiotics and should be treated with care.

6. The Stop Solution is 1N hydrochloric acid. Avoid contact with skin and mucous membranes. Immediately clean up any spills and wash area with copious amounts of water. If contact should occur, immediately flush with copious amounts of water.

MATERIALS REQUIRED BUT NOT PROVIDED

1. Laboratory quality distilled or deionized water.

2. Graduated cylinder, 100 ml or larger.

3. Glassware for sample extraction and extract collection.
4. Methanol
5. Pipet with disposable tips (10-200 µL).
6. Multi-channel pipet; 8 channel or stepper pipette capable of dispensing (10-250 µL).
7. Paper towels or equivalent absorbent material.
8. Microwell plate or strip reader with 450nm filter.
9. Timer
10. Vortex mixer
11. Wash bottle
12. J. T. Baker C18 column (7020-01).

TEST PROCEDURE (Note: Running calibrators and samples in duplicate will improve assay precision and accuracy.)

1. Allow reagents and sample extracts reach room temperature prior to running the test.
2. Place the appropriate number of test wells and into a microwell holder. Be sure to re-seal unused wells in the zip-lock bag with dessicant.
3. Using a pipet with disposable tips, add **50 µL enzyme conjugate** to the appropriate test wells. Be sure to use a clean pipet tip for each.
4. Add **50 ul of Calibrators or Sample extract** to the appropriate well using a pipette with disposable tips Be sure to use a clean tip for each sample.
4. Dispense **50 µL of Antibody Solution** into each test well using a multi-channel or stepping pipette.
5. Cover the wells with parafilm or tape and mix the plate gently in a circular motion on the benchtop for 30 seconds. Be careful not to spill the contents. Incubate the test wells for **60 minutes**.
7. Deacnt the contents of the wells into an appropriate waste container. Wash the wells with 250 uL of 1X Wash Solution and decant. Repeat 3X for a total of four washes.
8. Following the last wash tap the inverted wells onto absorbent paper to remove the last of the wash solution.
9. Dispense **100 µL of Substrate** into each well.
10. Incubate the wells for **30 minutes**.
11. Dispense **100 µL of Stop Solution** into each test well.
12. Read and record the absorbance of the wells at 450nm using a strip or plate reader.

RESULTS INTERPRETATION

1. Semi-quantitative results can be derived by simple comparison of the sample absorbances to the absorbance of the calibrator wells. Sample containing less color than a calibrator well have a concentration of Avermectins greater than the concentration of the calibrator. Samples containing more color than a calibrator well have a concentration less than the concentration of the calibrator.

2. Quantitative interpretation requires graphing the absorbances of the calibrators (X axis) versus the log of the calibrator concentration (Y axis) on semi-log graph paper. A straight line is drawn through the calibrator points and the sample absorbances are located on the line. The corresponding point on the Y axis is the concentration of the sample. Samples with absorbances greater than the lowest calibrator or less than the highest calibrator must be reported as < 0.185 ppb or >15 ppb, respectively.

   Alternatively, Abraxis can supply a spreadsheet template which can be used for data reduction. Please contact Abraxis for further details.

GENERAL LIMITED WARRANTY

Abraxis LLC ("Abraxis") warrants the products manufactured by it against defects in materials and workmanship when used in accordance with the applicable instructions for a period not to extend beyond a 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. The warranty provided herein and the data, specifications and descriptions of Abraxis products appearing in published catalogues and product literature may not be altered except by express written agreement signed by an officer of Abraxis. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, Abraxis's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in materials or workmanship within the warranty period, provided the customer notifies Abraxis promptly of any such defect. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as Abraxis is willing and able to repair or replace any nonconforming Abraxis product or part. Abraxis shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by a customer from the use of its products. However, in some states the purchaser may have rights under state law in addition to those provided by this warranty.

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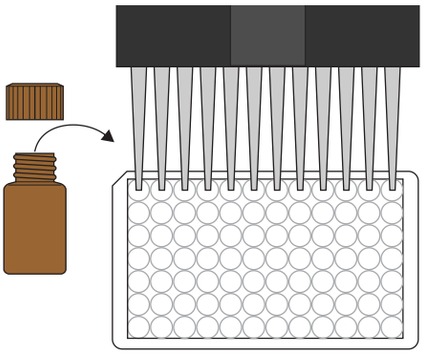
Avermectins Plate, Detailed ELISA Procedure

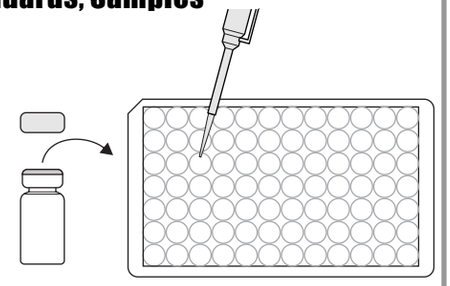
1. Addition of Enzyme Conjugate

Add 50 uL of the Avermectins enzyme conjugate to the individual wells successively using a multi-channel pipette or a stepping pipette.



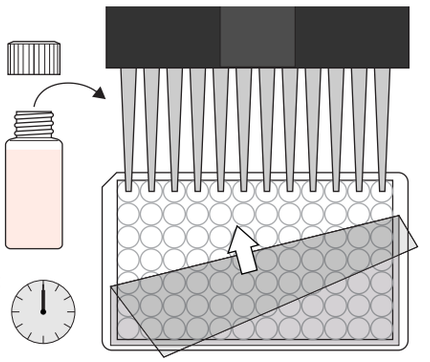
2. Addition of Standards, Samples

Add 50 uL of the standard solutions, samples or sample extracts into the wells of the test strips according to the working scheme given. We recommend using duplicates or triplicates.



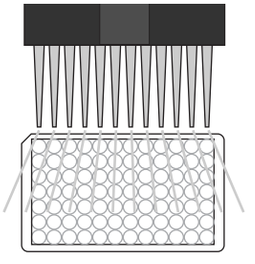
3. Addition of Antibody Solution

Add 50 uL of the Avermectins 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 minutes at room temperature.



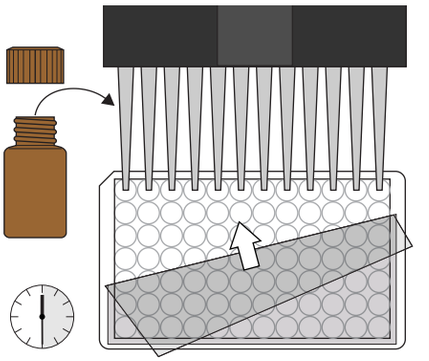
4. Washing of Plates

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 tap water. Please use at least 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.



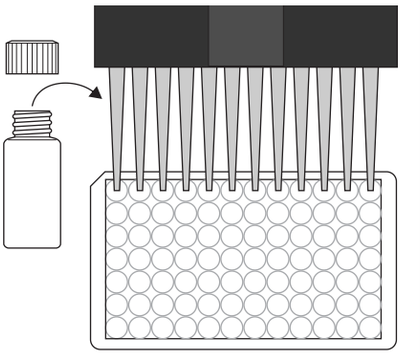
5. Addition of Substrate/Color Solution

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 30 minutes at room temperature away from direct sunlight.



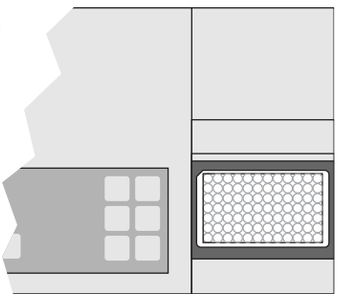
6. Addition of Stopping Solution

Add 100 uL of stop solution to the wells, in the same sequence as for the substrate solution, using a multi-channel pipette or a stepping



7. Measurement of Color

Read the absorbance at 450 nm using a microplate ELISA reader within 15 minutes. Calculate results.



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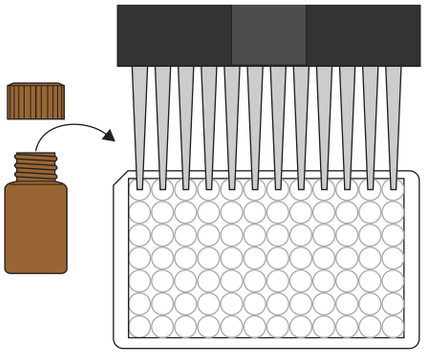
Avermectins Plate, Concise ELISA Procedure

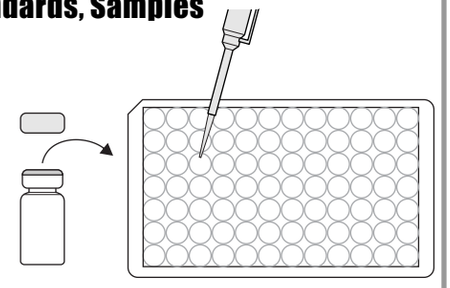
1. Addition of Enzyme Conjugate

Add 50 uL of enzyme conjugate.



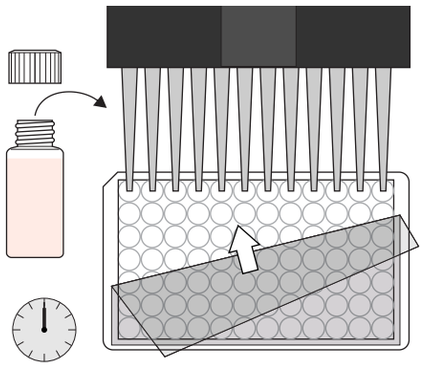
2. Addition of Standards, Samples

Add 50 uL of standard solutions, sample or sample extract.



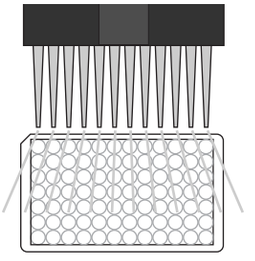
3. Addition of Antibody Solution

Add 50 uL of the antibody solution. Cover and mix for 30 seconds by moving strip holder in a circular motion on benchtop. Incubate for 60 minutes at room temperature.



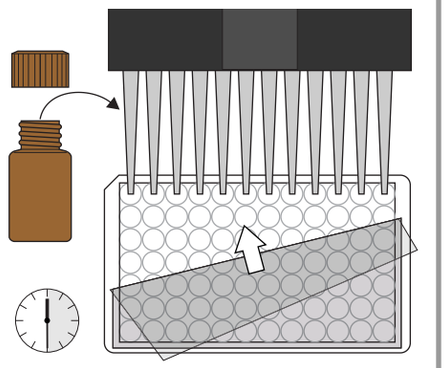
4. Washing of Plates

Wash the wells four times with 250 uL of tap water.



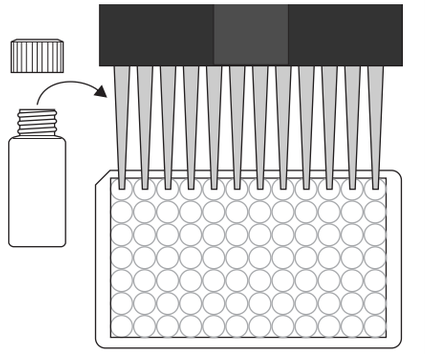
5. Addition of Substrate/Color Solution

Add 100 uL of substrate/color solution. Cover and mix for 30 seconds by moving strip holder in a circular motion on benchtop. Incubate 30 minutes at room temperature away from direct sunlight.



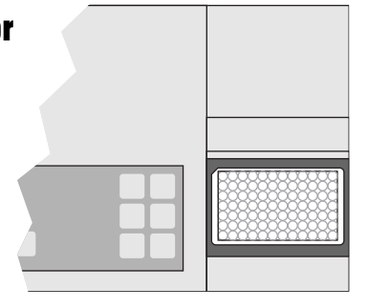
6. Addition of Stopping Solution

Add 100 uL of stop solution.



7. Measurement of Color

Measure color at 450 nm within 15 minutes. Calculate results.



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Safety Data Sheet

Section 1: Product and Company Identification

1.1 Product Identifiers:
Product Name: Ivermectin/Abamectin ELISA Plate Kit
Product Code: 5142B
1.2 Identified Use: Determination of Ivermectin/Abamectin 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 3), H226 Flammable liquid and vapor
Acute toxicity, Inhalation (Category 4), H332 Harmful if inhaled
Acute toxicity, Dermal (Category 4), H312 Harmful in contact with skin
Eye irritation (Category 2A), H319 Causes serious eye irritation
Reproductive toxicity (Category 1B), H360 May damage fertility or the unborn child
Corrosive to metals (Category 1), H290 May be corrosive to metals
Skin corrosion (Category 1B), H314 Causes severe skin burns and eye damage
Serious eye damage (Category 1), H318 Causes serious eye damage
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 May cause respiratory irritation
HMIS Rating: N,N-Dimethylformamide, CAS No. 68-12-2: Health hazard: 2, Chronic Health Hazard: *, Flammability: 2, Physical Hazard 0; Hydrochloric acid, CAS No. 7647-01-0: Health hazard: 3, Chronic Health Hazard: , Flammability: 0, Physical Hazard 0
NFPA Rating: N,N-Dimethylformamide, CAS No. 68-12-2: Health hazard: 2, Fire Hazard: 2, Reactivity Hazard: 0; Hydrochloric acid, CAS No. 7647-01-0: Health hazard: 3, Fire Hazard: 0, Reactivity Hazard: 0
2.2 GHS Label elements, including precautionary statements:
Pictogram(s)

Signal word(s): Danger
Hazard statement(s):
H226 Flammable liquid and vapor.
H290 May be corrosive to metals.
H312 + H332 Harmful in contact with skin or if inhaled
H314 + H318 Causes severe skin burns and eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.
Precautionary statement(s):
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P234 Keep only in original container.
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.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/eye protection/ face protection.
P281 Use personal protective equipment as required.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER or doctor/physician.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P390 Absorb spillage to prevent material damage.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
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): N,N-Dimethylformamide, DMF Formula: C_3H_7NO Molecular weight: 73.09 g/mol
CAS No.: 68-12-2 EC-No.: 200-679-5
Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)
Classification: Flammable Liquid 3; Acute Toxicity 4; Eye Irritation 2A; Reproductive Toxicity 1B; H226, H312 + H332, H319, H360
Percentage in Mixture: 1.25 %
Name and Synonym(s): Hydrochloric acid, HCl Formula: HCl Molecular weight: 36.46 g/mol
CAS No.: 7647-01-0 EC-No.: 231-595-7
Classification: Met. Corrosion 1; Skin Corrosion 1B; Eye Damage 1; STOT SE 3; H290, H314, H335
Percentage in Mixture: 0.50-1.00 %
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: Take off contaminated clothing and shoes immediately. 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. Continue rinsing eyes during transport to hospital.
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: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
5.2 Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides; Hydrogen chloride gas
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, including respiratory protection (see section 8). 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. Absorb with non-combustible liquid-binding material. 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

N,N-Dimethylformamide, CAS No. 68-12-2

Value	Control parameters	Basis
TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
Liver damage Substances for which there is a Biological Exposure Index or Indices (see BEI section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
TWA	10 ppm; 30 mg/m^3	USA. Occupational Exposure Limits; (OSHA) - Table Z-1 Limits for Air Contaminants
Skin designation The value in mg/m^3 is approximate.		
TWA	10 ppm; 30 mg/m^3	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption		

Hydrochloric acid, CAS No. 7647-01-0

Value	Control parameters	Basis
C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
C	5 ppm; 7 mg/m^3	USA. NIOSH Recommended Exposure Limits
Often used in an aqueous solution		
C	5 ppm; 7 mg/m^3	USA. Occupational Exposure Limits; (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		

Biological occupational exposure limits

N,N-Dimethylformamide, CAS No. 68-12-2

Parameters	Value	Biological specimen	Basis
N-Methylformamide	15.0000 mg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
End of shift (As soon as possible after exposure ceases)			
N-Acetyl-S-(N-methylcarbamoyl) cysteine	40.0000 mg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
Prior to last shift of workweek			

Derived No Effect Level (DNEL)

N,N-Dimethylformamide, CAS No. 68-12-2

Application area	Exposure routes	Health effect	Value

Workers	Skin contact	Acute systemic effects	26.3mg/kg BW/d
Workers	Skin contact	Long-term systemic effects	3.31mg/kg BW/d
Workers	Inhalation	Acute systemic effects, Acute local effects	30 mg/m^3
Workers	Inhalation	Long-term systemic effects, Long-term local effects	15 mg/m^3

Predicted No Effect Concentration (PNEC)

N,N-Dimethylformamide, CAS No. 68-12-2

Compartment	Value
Water	30 mg/l
Soil	16.235 mg/kg
Marine water	3 mg/kg
Fresh water	30 mg/l
Fresh water sediment	25.05 mg/kg
Onsite sewage treatment plant	123 mg/l

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 (8 inch minimum) 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 vapors. Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Body protection: For N,N-Dimethylformamide and Hydrochloric acid, complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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: Strong oxidizing agents, alkali metals, metals, bases, amines, permanganates, fluorine, metal acetylides, hexalithium disilicide

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 *(N,N-Dimethylformamide, CAS No. 68-12-2)***:**

Inhalation LC50 Inhalation - Rat - 4 h - 9 - 15 mg/l **Ingestion** LD50 Oral - Rat - 2,800 mg/kg

Skin contact LD50 Dermal - Rabbit - 1,500 mg/kg; Human—mild skin irritation 24h

Eye contact Rabbit eye—moderate irritation **Respiratory or skin sensitization** No data available
Aspiration hazard No data available

Acute toxicity *(Hydrochloric acid, CAS No. 7647-01-0)***:**

Inhalation No data available **Ingestion** No data available
Skin contact Rabbit—causes burns **Eye contact** Rabbit—corrosive to eyes
Respiratory or skin sensitization No data available **Aspiration hazard** No data available

Mutagenicity *(N,N-Dimethylformamide, CAS No. 68-12-2)***:** Mouse lymphocyte: mutation in somatic cells; *(Hydrochloric acid, CAS No. 7647-01-0)***:** No data available

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: *(N,N-Dimethylformamide, CAS No. 68-12-2)***:** May cause congenital malformation of the fetus; *(Hydrochloric acid, CAS No. 7647-01-0)***:** No data available

Specific target organ toxicity, single exposure: No data available

Specific target organ toxicity, repeated exposure: No data available

Additional information *(N,N-Dimethylformamide, CAS No. 68-12-2)*: RTECS: LQ2100000 Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin. Vomiting, diarrhea, abdominal pain *(Hydrochloric acid, CAS No. 7647-01-0)*: RTECS: MW4025000 Burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx and bronchi, pneumonitis, pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Section 12: Ecological Information

12.1 Toxicity: *N,N-Dimethylformamide, CAS No. 68-12-2:* Toxicity to fish LC50 - *Oncorhynchus mykiss* (rainbow trout) - 9,000 - 13,000 mg/l - 96h; LC50 - *Lepomis macrochirus* (bluegill) - 6,700 - 7,500 mg/l - 96h; LC50 - *Pimephales promelas* (fathead minnow) - 10,400 - 10,800 mg/l - 96h; Toxicity to daphnia and other aquatic invertebrates EC50 - *Daphnia magna* (water flea) - 9,600 - 15,700 mg/l - 48h; Toxicity to algae LC50 - *Desmodesmus subspicatus* (green algae) - > 500 mg/l - 96h. *Hydrochloric acid, CAS No. 7647-01-0:* Toxicity to fish LC50 - *Gambusia affinis* (mosquito fish) - 282 mg/l - 96h

12.2 Persistence and degradability: N,N-Dimethylformamide is readily biodegradable (>90%). Hydrochloric acid, no data available

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 N,N-Dimethylformamide and Hydrochloric acid)

Transport hazard class(es): 9

Packing group: III

Environmental hazard: See section 12

Bulk transport: Reportable quantities--N,N-Dimethylformamide (100 lbs); Hydrochloric acid (13514 lbs)

Special considerations: See section 7 for handling

Section 15: Regulatory Information

EU Regulations, Hazard Symbol(s): N,N-Dimethylformamide: T (Toxic); Hydrochloric acid: C (Corrosive)

Safety and Risk Phrases:
N,N-Dimethylformamide: R 61 / 20/21 / 36 May cause harm to the unborn child. Harmful by inhalation and in contact with skin. Irritating to eyes. S 53 / 45 Avoid exposure--obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
Hydrochloric acid: R 20 / 34 Harmful by inhalation. Causes burns. S 26 / 45 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
SARA Title III, Section 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA Title III, Section 313 Components: N,N-Dimethylformamide, CAS No. 68-12-2, Hydrochloric acid, CAS No. 7647-01-0
SARA 311/312 Hazards: N,N-Dimethylformamide, CAS No. 68-12-2: Fire Hazard, Acute Health Hazard, Chronic Health Hazard. Hydrochloric acid, CAS No. 7647-01-0: Acute Health Hazard
State Right-to-Know
Massachusetts: N,N-Dimethylformamide, CAS No. 68-12-2, Hydrochloric acid, CAS No. 7647-01-0
Pennsylvania: N,N-Dimethylformamide, CAS No. 68-12-2, Hydrochloric acid, CAS No. 7647-01-0
New Jersey: N,N-Dimethylformamide, CAS No. 68-12-2, Hydrochloric acid, CAS No. 7647-01-0

Section 16: Other information

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