Spinosyn Tube Kit

PN 50020B

Instructional Booklet
Read Completely Before Use.

Intended Use

The Spinosyn Tube Kit is a competitive ELISA for the quantitative analysis of Spinosyn in water samples.

Assay Principles

The Spinosyn Tube Kit is a competitive enzyme-labeled immunoassay. The sample is mixed with a special diluent and then added in conjunction with specific Spinosyn antibodies to a test tube coated with a second anti-species antibody. After the initial 15 minute incubation of Antibody with sample, enzyme-labeled Spinosyn is added to the tube. The toxin from the extract and the enzyme-labeled toxin compete for a limited number of antibody binding sites. Following this second 15 minute incubation, the contents of the tubes are removed and the tubes are washed to remove any unbound toxin or enzyme-labeled toxin. A clear substrate is then added to the tubes and any bound enzyme-toxin conjugate causes the conversion to a blue color. Following a 15 minute incubation, the reaction is stopped and amount of color in each tube is read. The color of unknown samples is compared to the color of the calibrators and the Spinosyn concentration of the samples is derived.

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.

1. 100 anti-Rabbit IgG (capture antibody) coated test tubes in a sealed foil pouches with indicating dessicant.
2. 5 vials each containing 10 mL of Spinosyn calibrators corresponding to 0, 0.05, 0.125, 0.25 and 0.5 µg/kg (ppb) of Spinosyn(XDE-175) in a buffered solution.
3. 1 vial containing 30 mL of Spinosyn-HRP Enzyme Conjugate.
4. 1 vial containing 30 mL of anti-Spinosyn antibodies.
5. 1 amber vial containing 60 mL of Substrate.
6. 1 vial containing 60 mL of Stop Solution. (Caution! 1N HCl. Handle with care.)
7. 1 vial Stabilizer/Surfactant Solution
8. 1 bottle containing 1 L, Wash Solution,
9. Instructions

PRECAUTIONS

1. Each reagent is optimized for use in the Spinosyn Tube Kit. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other 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. Spinosyn is a toxic substance. Dispose of all liquids in an appropriate manner.

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. Pipet with disposable tips capable of dispensing 250 and 500 µL.

3. Paper towels or equivalent absorbent material.

4. Photometer capable of reading 12mm tubes at 450nm.

5. Timer

6. Balance

SAMPLE PREPARATION

1. Spinosyn absorbs to glass and plastic surfaces. Immediately upon collection of sample, add 1mL 100X surfactant solution per 100 mL sample.

2. Samples containing >0.5 ppb Spynosin will need to be diluted to obtain correct results. Dilution is recommended using the 1X surfactant solution.

TEST PROCEDURE

1. Allow reagents and sample extracts to reach room temperature prior to running the test.

2. Place the appropriate number of capture antibody-coated tubes into the tube holder. Be sure to re-seal unused tubes in the zip-lock pouch with dessicant.

3. Dispense **500 µL of each Calibrator and Sample Extract** into the appropriate tubes. Use a clean pipet tip for each.

4. Dispense **250 µL of Antibody solution** into each tube.

5. Shake the rack vigorously to mix the contents of the tubes. Incubate 15 minutes.

6. Dispense **250 µL of Enzyme Conjugate** into each tube.

7. Incubate the tubes for **15 minutes**.

8. Dump the contents of the tubes into an appropriate waste container. Fill the tubes to overflowing with laboratory grade water and dump wash. Repeat 4X for a total of five washes.

9. Following the last wash tap the inverted tubes onto absorbent paper to remove the last of the wash.

10. Dispense **500 µL of Substrate** into each tube.

11. Incubate the tubes for **15 minutes**.

12. Dispense **500 µL of Stop Solution** into each test tube.

13. Read and record the absorbance of the tubes at 450nm.

RESULTS INTERPRETATION

1. Semi-quantitative results can be derived by simple comparison of the sample absorbances to the absorbance of the calibrator tubes: Samples containing less color than a calibrator tube have a concentration of Spinosyn greater than the concentration of the calibrator. Samples containing more color than a calibrator tube 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 < 0.05 ppb or >0.5 ppb, respectively.

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

PERFORMANCE DATA

SPECIFICITY

Compound	IC 85%		IC 50%		IC 20%	
	ppb	%CR	ppb	%CR	ppb	%CR
Spinosyn J	0.021	100.0	0.075	100.0	0.297	100.0
Spinosyn A	0.031	67.7	0.091	82.1	0.310	96.0
Spinosyn D	0.023	90.0	0.088	84.5	0.386	77.0
Spinosyn L	0.026	81.8	0.086	86.5	0.354	84.1
XDE-175-J	0.023	92.6	0.075	100.0	0.263	113.1
XDE-175-L	0.026	81.8	0.092	81.2	0.367	80.9
2'-demethyl XDE-175-L	0.026	80.8	0.089	83.6	0.352	84.5
2'-demethyl XDE-175-J	0.020	106.8	0.073	101.8	0.277	107.2
5,6-dihydro-Spinosyn J	0.025	85.1	0.075	99.6	0.258	115.2

PRECISION

	0.3ppb	0.1ppb
Replicates	3	3
Days	2	2
n	9	9
Mean (ppb)	0.310	0.104
% CV (intra-assay)	2.31	2.83
% CV (inter-assay)	3.95	0.25
Max % from theoretical	11.2	6.98

SENSITIVITY

The spinosyn tube assay has a calculated Least Detectable Dose (LDD) of 0.014 ng/mL for XDE-175, which is the compound used for the standards.

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SPINOSYN DETAILED FLOWCHART

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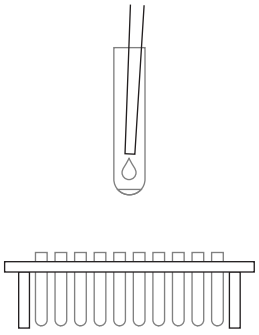
1.

Label test tubes for Standards (Calibrators), Control, and Samples.

Tube #	Content
1, 2	Diluent/Zero Standard 0 ppb
3, 4	Standard 1, 0.05 ppb
5, 6	Standard 2, 0.125 ppb
7, 8	Standard 3, 0.25 ppb
9, 10	Standard 4. 0.5 ppb
11	Sample 1
12	Sample 2
13	Sample 3

Add 500 µL of either Standards, Control or Samples down the inside wall of each test tube by aiming the pipet tip 1/4" to 1/2" below the tube rim without touching the rim or tube wall with the pipet tip; deliver liquid gently.

2.



Add 250 µL of the Spinosyn Antibody Solution to the bottom of each tube by inserting the pipette tip all the way into the bottom of the tube without touching the side of the tubes.

3.

React 15 minutes at room temperature (15 °- 30°C).

4.

Add 250 µL of Spinosyn Enzyme Conjugate down the inside wall of each tube by using the technique described in Box 2.
Vortex or swirl for 5 to 10 seconds

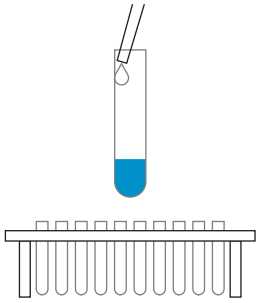
5.

React 15 minutes at room temperature (15 °- 30°C).

6.

Add 4 mL of Washing Solution to each tube (alternatively flood the tubes completely with wash solution then invert to empty tubes). Using a smooth motion, invert tubes over a sink and pour out the tube contents: keep inverted and blot the test tube rims on several layers of paper toweling.
Repeat this step 4 times for a total of five washes.

7.

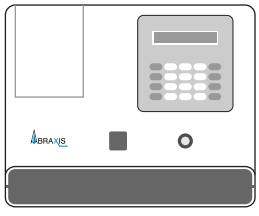


Add 500 µL of Color Reagent down the inside wall of each tube by using the technique described in Box 2.

8.

React for 15 minutes at room Temperature (15°- 30° C). During this period, add 1 mL of Washing Solution into a clean tube for use as an instrument blank in Step 8.

9.



Add 500 µL of Stopping Solution down the inside wall of each tube by using the technique previously Described. *Read* results at 450 nm within 15 minutes after adding the Stopping Solution. *Multiply* results of samples by the appropriate dilution factor (if any).

[**Safety Caution:** Stopping Solution contains diluted sulfuric acid.]

Spinosyn Tube Kit Part # 50020B, 40 Test

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ABRAXIS

SPINOSYN CONCISE FLOWCHART

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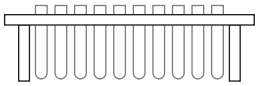
1.

Add 500 µL of either Standards, Control or Samples to the bottom of each test tube.

2.



Add 250 µL of Antibody Solution to each test tube.

3.

Incubate for 15 minutes.

4.

Add 250 µL of Spinosyn Enzyme Conjugate to each test tube.

Vortex or swirl.

5.

Incubate for 15 minutes.

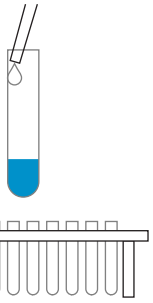
6.

Add 4 mL of Washing Solution (alternatively flood the tubes).

Invert the tubes and blot.

Repeat this step 4 times for a total of five washes.

7.



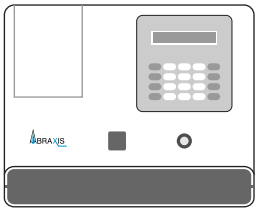
Add 500 µL of Color Reagent down the inside wall of each test tube.

8.

Incubate for 15 minutes.

Prepare blank.

9.



Add 500 µL of Stopping Solution to each test tube.

Read OD 450

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Spinosyn Tube Kit Part # 50020B, 40 Test

ABRAXIS

Safety Data Sheet

Section 1: Product and Company Identification

1.1 Product Identifiers:
Product Name: Spinosyn Coated Tube Kit
Product Code: 50020B
1.2 Identified Use: Determination of Spinosyn 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: 1.19 %
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: 0.48-0.95 %
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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