

# SAFETY DATA SHEET



## Multiple Heart-Cutting Starter Kit, Part Number G4242-68000

### SECTION 1: Identification of the substance/mixture and of the company/ undertaking

#### 1.1 Product identifier

<b>Product name</b>	: Multiple Heart-Cutting Starter Kit, Part Number G4242-68000		
<b>Part No. (Kit)</b>	: G4242-68000		
<b>Part No.</b>	: 2D-LC Solution, Part	5190-6895	
	Number 5190-6895		
	Formic Acid, Part	G2453-85060	
	Number G2453-85060		

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	
Analytical reagent.	
2D-LC Solution, Part Number	1 x 2 ml
5190-6895	
Formic Acid, Part Number	5 ml
G2453-85060	

#### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG  
Hewlett-Packard-Str. 8  
76337 Waldbronn  
Germany  
0800 603 1000

**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

#### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

<b>Product definition</b>	: 2D-LC Solution, Part	Mixture
	Number 5190-6895	
	Formic Acid, Part	Mixture
	Number G2453-85060	

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

##### 2D-LC Solution, Part Number 5190-6895

H225	FLAMMABLE LIQUIDS - Category 2
H302	ACUTE TOXICITY (oral) - Category 4
H312	ACUTE TOXICITY (dermal) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H400	ACUTE AQUATIC HAZARD - Category 1
H410	LONG-TERM AQUATIC HAZARD - Category 1

##### Formic Acid, Part Number G2453-85060

H226	FLAMMABLE LIQUIDS - Category 3
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**SECTION 2: Hazards identification**

H314

SKIN CORROSION/IRRITATION - Category 1A

Classification according to Directive 1999/45/EC [DPD]

2D-LC Solution, Part Number 5190-6895

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Formic Acid, Part Number G2453-85060

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification** : 2D-LC Solution, Part Number 5190-6895 : F; R11  
Xn; R20/21/22  
Xi; R36  
R66  
N; R50/53  
C; R35

Formic Acid, Part Number G2453-85060

**Physical/chemical hazards** : 2D-LC Solution, Part Number 5190-6895 : Highly flammable.  
Formic Acid, Part Number G2453-85060 : Not applicable.

**Human health hazards** : 2D-LC Solution, Part Number 5190-6895 : Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes. Repeated exposure may cause skin dryness or cracking.  
Formic Acid, Part Number G2453-85060 : Causes severe burns.

**Environmental hazards** : 2D-LC Solution, Part Number 5190-6895 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Formic Acid, Part Number G2453-85060 : Not applicable.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

**2.2 Label elements**

**Hazard pictograms**



**Signal word** : 2D-LC Solution, Part Number 5190-6895 : Danger  
Formic Acid, Part Number G2453-85060 : Danger

**Hazard statements** : 2D-LC Solution, Part Number 5190-6895 : **GHS02** - Highly flammable liquid and vapour.  
**GHS07** - Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes serious eye irritation. May cause drowsiness or dizziness.  
**GHS09** - Very toxic to aquatic life with long lasting effects.  
Formic Acid, Part Number G2453-85060 : **GHS02** - Flammable liquid and vapour.  
**GHS05** - Causes severe skin burns and eye damage.

Precautionary statements

## SECTION 2: Hazards identification

<b>Prevention</b>	: 2D-LC Solution, Part Number 5190-6895	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P210 - Keep away from heat, sparks, open flames and hot surfaces. - No smoking. P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. P273 - Avoid release to the environment.
	Formic Acid, Part Number G2453-85060	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P210 - Keep away from heat, sparks, open flames and hot surfaces. - No smoking. P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
<b>Response</b>	: 2D-LC Solution, Part Number 5190-6895	P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
	Formic Acid, Part Number G2453-85060	P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician. P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.
<b>Storage</b>	: 2D-LC Solution, Part Number 5190-6895	P235 - Keep cool.
	Formic Acid, Part Number G2453-85060	P235 - Keep cool.
<b>Disposal</b>	: 2D-LC Solution, Part Number 5190-6895	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Formic Acid, Part Number G2453-85060	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Hazardous ingredients</b>	: <b>2D-LC Solution, Part Number 5190-6895</b> Acetonitrile Acetone	
	<b>Formic Acid, Part Number G2453-85060</b> Formic acid	
<b>Supplemental label elements</b>	: 2D-LC Solution, Part Number 5190-6895	Contains atrazine (ISO), Metazachlor (ISO) and desethylterbutylazine. May produce an allergic reaction. Repeated exposure may cause skin dryness or cracking.
	Formic Acid, Part Number G2453-85060	Contains atrazine (ISO), Metazachlor (ISO) and desethylterbutylazine. May produce an allergic reaction. Repeated exposure may cause skin dryness or cracking.
<b><u>Special packaging requirements</u></b>		
<b>Tactile warning of danger</b>	: 2D-LC Solution, Part Number 5190-6895	Not applicable.
	Formic Acid, Part Number G2453-85060	Not applicable.
<b>2.3 Other hazards</b>		
<b>Other hazards which do not result in classification</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation. None known.

**SECTION 3: Composition/information on ingredients**

**Substance/mixture** : 2D-LC Solution, Part Mixture  
 Number 5190-6895  
 Formic Acid, Part Mixture  
 Number G2453-85060

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
<b>2D-LC Solution, Part Number 5190-6895</b> Acetonitrile	EC: 200-835-2 CAS: 75-05-8 Index: 608-001-00-3	>=50 - <75	F; R11 Xn; R20/21/22 Xi; R36	Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1] [2]
Acetone	EC: 200-662-2 CAS: 67-64-1 Index: 606-001-00-8	>=20 - <25	F; R11 Xi; R36 R66, R67	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 (Narcotic effects)	[1] [2]
Atrazine (ISO)	EC: 217-617-8 CAS: 1912-24-9 Index: 613-068-00-7	<0.25	Xn; R48/22 R43 N; R50/53	Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
Chlorotoluron (ISO)	EC: 239-592-2 CAS: 15545-48-9 Index: 616-105-00-5	>=0.1 - <0.25	Carc. Cat. 3; R40 Repr. Cat. 3; R63 N; R50/53	Carc. 2, H351 Repr. 2, H361d (Unborn child) Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
Diuron (ISO)	EC: 206-354-4 CAS: 330-54-1 Index: 006-015-00-9	>=0.1 - <0.25	Carc. Cat. 3; R40 Xn; R22, R48/22 N; R50/53	Acute Tox. 4, H302 Carc. 2, H351 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
3-Cyclohexyl-6-dimethylamino-1-methyl-1,2,3,4-tetrahydro-1,3,5-triazine-2,4-dione Linuron (ISO)	EC: 257-074-4 CAS: 51235-04-2 Index: 613-132-00-4	>=0.1 - <0.25	Xn; R22 Xi; R36 N; R50/53	Acute Tox. 4, H302 Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
Methabenzthiazuron (ISO)	EC: 206-356-5 CAS: 330-55-2 Index: 006-021-00-1	>=0.1 - <0.25	Carc. Cat. 3; R40 Repr. Cat. 2; R61 Repr. Cat. 3; R62 Xn; R22, R48/22 N; R50/53	Acute Tox. 4, H302 Carc. 2, H351 Repr. 1B, H360Df (Unborn child and Fertility) STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
2-Chloro-N-(2,6-dimethylphenyl)-N-(1H-pyrazol-1-ylmethyl)acetamide	EC: 266-583-0 CAS: 67129-08-2 Index: 616-205-00-9	>=0.1 - <0.25	Carc. Cat. 3; R40 R43 N; R50/53	Skin Sens. 1B, H317 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
Metoxuron (ISO)	EC: 242-505-0 CAS: 18691-97-9 Index: 613-137-00-1	<0.25	N; R50/53	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
prometryn	EC: 243-433-2 CAS: 19937-59-8 Index: 006-033-00-7	<0.25	N; R50/53	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
Terbutylazine	EC: 230-711-3 CAS: 7287-19-6	>=0.1 - <0.25	Xn; R22 N; R51/53	Acute Tox. 4, H302 Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
desethylterbutylazine	EC: 227-637-9 CAS: 5915-41-3	>=0.1 - <0.25	Xn; R22 N; R50/53	Acute Tox. 4, H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
desethylterbutylazine	CAS: 30125-63-4	<1	R43	Skin Sens. 1, H317	[1]

### SECTION 3: Composition/information on ingredients

<p><b>Formic Acid, Part Number G2453-85060</b> Formic acid</p>	<p>EC: 200-579-1 CAS: 64-18-6 Index: 607-001-00-0</p>	<p>&gt;=90</p>	<p>C; R35  <b>See Section 16 for the full text of the R-phrases declared above.</b></p>	<p>Skin Corr. 1A, H314  <b>See Section 16 for the full text of the H statements declared above.</b></p>	<p>[1] [2]</p>
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

<b>Eye contact</b>	: 2D-LC Solution, Part Number 5190-6895	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	Formic Acid, Part Number G2453-85060	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
<b>Inhalation</b>	: 2D-LC Solution, Part Number 5190-6895	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	Formic Acid, Part Number G2453-85060	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**SECTION 4: First aid measures**

<b>Skin contact</b>	: 2D-LC Solution, Part Number 5190-6895	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Formic Acid, Part Number G2453-85060	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	: 2D-LC Solution, Part Number 5190-6895	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Formic Acid, Part Number G2453-85060	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Protection of first-aiders</b>	: 2D-LC Solution, Part Number 5190-6895	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	Formic Acid, Part Number G2453-85060	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**4.2 Most important symptoms and effects, both acute and delayed****Potential acute health effects**



## SECTION 4: First aid measures

<b>Eye contact</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Causes serious eye irritation.  Causes serious eye damage.
<b>Inhalation</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
<b>Skin contact</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Harmful in contact with skin. Defatting to the skin. May cause skin dryness and irritation. Causes severe burns.
<b>Ingestion</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach. May cause burns to mouth, throat and stomach.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: pain or irritation watering redness  Adverse symptoms may include the following: pain watering redness
<b>Inhalation</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
<b>Skin contact</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: irritation dryness cracking  Adverse symptoms may include the following: pain or irritation redness blistering may occur
<b>Ingestion</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No specific data.  Adverse symptoms may include the following: stomach pains

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No specific treatment.  No specific treatment.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

<b>Suitable extinguishing media</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam. Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Unsuitable extinguishing media</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Do not use water jet. Do not use water jet.

**5.2 Special hazards arising from the substance or mixture**

<b>Hazards from the substance or mixture</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Highly flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
<b>Hazardous combustion products</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides/cyanides Decomposition products may include the following materials: carbon dioxide carbon monoxide

**5.3 Advice for firefighters**

<b>Special precautions for fire-fighters</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
<b>Special protective equipment for fire-fighters</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.



**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

<b>For non-emergency personnel</b>	: 2D-LC Solution, Part Number 5190-6895	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Formic Acid, Part Number G2453-85060	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	: 2D-LC Solution, Part Number 5190-6895	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Formic Acid, Part Number G2453-85060	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions**

: 2D-LC Solution, Part Number 5190-6895	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
Formic Acid, Part Number G2453-85060	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**6.3 Methods and materials for containment and cleaning up**

<b>Methods for cleaning up</b>	: 2D-LC Solution, Part Number 5190-6895	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	Formic Acid, Part Number G2453-85060	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**6.4 Reference to other sections**

: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.
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**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

<b>Protective measures</b>	: 2D-LC Solution, Part Number 5190-6895	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Formic Acid, Part Number G2453-85060	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	: 2D-LC Solution, Part Number 5190-6895	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	Formic Acid, Part Number G2453-85060	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	: 2D-LC Solution, Part Number 5190-6895	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
	Formic Acid, Part Number G2453-85060	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store

## SECTION 7: Handling and storage

in unlabelled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

- Recommendations** : 2D-LC Solution, Part Number 5190-6895 Industrial applications, Professional applications.  
 Formic Acid, Part Number G2453-85060 Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not applicable.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
<b>2D-LC Solution, Part Number 5190-6895</b> Acetonitrile	<b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b> TWA: 40 ppm 8 hours. TWA: 70 mg/m <sup>3</sup> 8 hours.
Acetone	<b>EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values</b> TWA: 500 ppm 8 hours. TWA: 1210 mg/m <sup>3</sup> 8 hours.
<b>Formic Acid, Part Number G2453-85060</b> Formic acid	<b>EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values</b> TWA: 5 ppm 8 hours. TWA: 9 mg/m <sup>3</sup> 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### Derived effect levels

No DNELs available.

#### Predicted effect concentrations

No PNECs available.

### 8.2 Exposure controls

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

#### Individual protection measures

## SECTION 8: Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : 2D-LC Solution, Part Number 5190-6895 Liquid.  
Formic Acid, Part Number G2453-85060 Liquid.
- Colour** : 2D-LC Solution, Part Number 5190-6895 Not available.  
Formic Acid, Part Number G2453-85060 Clear. Colourless.
- Odour** : 2D-LC Solution, Part Number 5190-6895 Not available.  
Formic Acid, Part Number G2453-85060 Pungent.
- Odour threshold** : 2D-LC Solution, Part Number 5190-6895 Not available.  
Formic Acid, Part Number G2453-85060 Not available.
- pH** : 2D-LC Solution, Part Number 5190-6895 Not available.  
Formic Acid, Part Number G2453-85060 Not available.

**SECTION 9: Physical and chemical properties**

<b>Melting point/freezing point</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. 8°C
<b>Initial boiling point and boiling range</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. 101°C
<b>Flash point</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Closed cup: -18 to 23°C Closed cup: 59°C
<b>Evaporation rate</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Not available.
<b>Flammability (solid, gas)</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not applicable. Not available.
<b>Upper/lower flammability or explosive limits</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Lower: 18% Upper: 57%
<b>Vapour pressure</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. 5.3 kPa [room temperature]
<b>Vapour density</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. 1.6 [Air = 1]
<b>Relative density</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Not available.
<b>Solubility(ies)</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Not available.
<b>Auto-ignition temperature</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. 601°C
<b>Decomposition temperature</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Not available.
<b>Viscosity</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Not available.
<b>Explosive properties</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Not available. Slightly explosive in the presence of the following materials or conditions: oxidizing materials.



**SECTION 9: Physical and chemical properties****9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	The product is stable. The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
<b>10.5 Incompatible materials</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Reactive or incompatible with the following materials: oxidizing materials Reactive or incompatible with the following materials: oxidizing materials
<b>10.6 Hazardous decomposition products</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
2D-LC Solution, Part Number 5190-6895 Acetonitrile	LC50 Inhalation Vapour	Rat	17100 ppm	4 hours
	LD50 Dermal	Rabbit	980 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
Acetone	LD50 Oral	Rat	5800 mg/kg	-
	Atrazine (ISO)	LC50 Inhalation Dusts and mists	Rat	5200 mg/m <sup>3</sup>
LD50 Dermal		Rabbit	7500 mg/kg	-
LD50 Dermal		Rat	3 g/kg	-
Chlorotoluron (ISO)	LD50 Oral	Rat	672 mg/kg	-
	LD50 Oral	Rat	5800 mg/kg	-
	LD50 Dermal	Rat	>5 g/kg	-
Diuron (ISO)	LD50 Oral	Rat	1 g/kg	-
	LD50 Dermal	Rabbit	>5278 mg/kg	-
	3-Cyclohexyl-6-dimethylamino-1-methyl-1,2,3,4-tetrahydro-1,3,5-triazine-2,4-dione	LD50 Dermal	Rat	5278 mg/kg
LD50 Oral		Rat	1690 mg/kg	-



## SECTION 11: Toxicological information

Linuron (ISO)	LC50 Inhalation Dusts and mists	Rat	48 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	>5 g/kg	-
	LD50 Oral	Rat	1146 mg/kg	-
2-Chloro-N-(2,6-dimethylphenyl)-N-(1H-pyrazol-1-ylmethyl)acetamide	LD50 Dermal	Rat	>6810 mg/kg	-
	LD50 Oral	Rat	1 g/kg	-
Metoxuron (ISO)	LD50 Oral	Rat	1600 mg/kg	-
prometryn	LD50 Oral	Rat	1802 mg/kg	-
Terbuthylazine	LD50 Oral	Rat	1845 mg/kg	-
<b>Formic Acid, Part Number G2453-85060</b>				
Formic acid	LC50 Inhalation Dusts and mists	Rat	7400 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	730 mg/kg	-

### Acute toxicity estimates

Route	ATE value
<b>2D-LC Solution, Part Number 5190-6895</b>	
Oral	680 mg/kg
Dermal	1496 mg/kg
Inhalation (dusts and mists)	2.04 mg/l

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>2D-LC Solution, Part Number 5190-6895</b>					
Acetonitrile	Eyes - Moderate irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
Acetone	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-
Atrazine (ISO)	Eyes - Severe irritant	Rabbit	-	6320 Micrograms	-
	Skin - Mild irritant	Rabbit	-	38 milligrams	-
3-Cyclohexyl-6-dimethylamino-1-methyl-1,2,3,4-tetrahydro-1,3,5-triazine-2,4-dione prometryn	Eyes - Moderate irritant	Rabbit	-	48 milligrams	-
	Eyes - Mild irritant	Rabbit	-	80 milligrams	-
<b>Formic Acid, Part Number G2453-85060</b>					
Formic acid	Eyes - Severe irritant	Rabbit	-	122 milligrams	-

### Sensitiser

**Conclusion/Summary** : Not available.

### Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
<b>2D-LC Solution, Part Number 5190-6895</b>			
Acetone	Category 3	Not applicable.	Narcotic effects

### Specific target organ toxicity (repeated exposure)

## SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
<b>2D-LC Solution, Part Number 5190-6895</b> Atrazine (ISO) Diuron (ISO) Linuron (ISO)	Category 2 Category 2 Category 2	Not determined Not determined Not determined	Not determined Not determined Not determined

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

<b>Inhalation</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
<b>Ingestion</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach. May cause burns to mouth, throat and stomach.
<b>Skin contact</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Harmful in contact with skin. Defatting to the skin. May cause skin dryness and irritation. Causes severe burns.
<b>Eye contact</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Causes serious eye irritation. Causes serious eye damage.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
<b>Ingestion</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No specific data. Adverse symptoms may include the following: stomach pains
<b>Skin contact</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: irritation dryness cracking Adverse symptoms may include the following: pain or irritation redness blistering may occur
<b>Eye contact</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain watering redness

### Delayed and immediate effects and also chronic effects from short and long term exposure

**SECTION 11: Toxicological information****Short term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Long term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Potential chronic health effects**

<b>General</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: 2D-LC Solution, Part Number 5190-6895 Formic Acid, Part Number G2453-85060	No known significant effects or critical hazards. No known significant effects or critical hazards.

**Toxicokinetics**

**Absorption** : 2D-LC Solution, Part Number 5190-6895  
Formic Acid, Part Number G2453-85060  
Not available.  
Not available.

**Distribution** : 2D-LC Solution, Part Number 5190-6895  
Formic Acid, Part Number G2453-85060  
Not available.  
Not available.

**Metabolism** : 2D-LC Solution, Part Number 5190-6895  
Formic Acid, Part Number G2453-85060  
Not available.  
Not available.

**Elimination** : 2D-LC Solution, Part Number 5190-6895  
Formic Acid, Part Number G2453-85060  
Not available.  
Not available.

**Other information** : Not available.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure
2D-LC Solution, Part Number 5190-6895	Acetonitrile	Aquatic plants - Lemna minor Daphnia - Daphnia magna Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 48 hours 96 hours
	Acetone	Aquatic plants - Lemna minor Daphnia - Daphnia magna Algae - Ulva pertusa Crustaceans - Gammarus pulex Daphnia - Daphnia magna Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 21 days 96 hours 48 hours 48 hours 96 hours
Atrazine (ISO)	Acute LC50 100 mg/l Fresh water	Chronic NOEC 1000000 µg/l Fresh water	96 hours
	Chronic NOEC 160000 µg/l Fresh water	Chronic NOEC 4.95 mg/l Marine water	96 hours
	Acute EC50 20.565 mg/l Marine water	Chronic NOEC 0.016 ml/L Fresh water	21 days
	Acute LC50 6000000 µg/l Fresh water	Chronic NOEC 0.1 ml/L Fresh water	21 days
	Acute LC50 10000 µg/l Fresh water	Chronic NOEC 5 µg/l Marine water	42 days
	Acute LC50 100 mg/l Fresh water	Acute EC50 0.004 mg/l Fresh water	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Acute EC50 11 µg/l Fresh water	72 hours
	Chronic NOEC 0.016 ml/L Fresh water	Acute EC50 92 µg/l Fresh water	96 hours
	Chronic NOEC 0.1 ml/L Fresh water	Acute EC50 240 µg/l	48 hours
	Chronic NOEC 5 µg/l Marine water	Acute LC50 373.9 µg/l Marine water	48 hours
Chlorotoluron (ISO)	Acute LC50 2000 µg/l Marine water	Algae - Pseudokirchneriella subcapitata	96 hours
	Chronic NOEC 0.0005 mg/l Fresh water	Algae - Scenedesmus acutus	72 hours
	Chronic NOEC 7.47 µg/l Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 25 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Chronic NOEC 5 mg/l Fresh water	Crustaceans - Acartia tonsa - Adult	48 hours
	Chronic NOEC 3 µg/l Fresh water	Fish - Cyprinodon variegatus - Larvae	96 hours
	Acute EC50 0.0085 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 35000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 10 µg/l Fresh water	Algae - Chlorella pyrenoidosa - Exponential growth phase	96 hours
	Diuron (ISO)	Acute EC50 2.26 µg/l Marine water	Algae - Coccolithus huxleyi - Exponential growth phase
Acute EC50 0.0007 mg/l Fresh water		Algae - Pseudokirchneriella subcapitata	96 hours
Acute EC50 0.005 mg/l Fresh water		Aquatic plants - Lemna sp.	96 hours
Acute EC50 8.4 ppm Fresh water		Daphnia - Daphnia magna	48 hours
Acute LC50 380 µg/l Fresh water		Crustaceans - Gammarus lacustris	48 hours
Acute LC50 500 µg/l Fresh water		Fish - Morone saxatilis - Larvae	96 hours
Chronic NOEC 0.54 µg/l Marine water		Algae - Coccolithus huxleyi - Exponential growth phase	72 hours
Chronic NOEC 26.4 ppb		Fish - Pimephales promelas	60 days
Acute EC50 56 µg/l Fresh water		Algae - Pseudokirchneriella subcapitata - Exponential growth phase	3 days
3-Cyclohexyl-6-dimethylamino-1-methyl-1,2,3,4-tetrahydro-1,3,5-triazine-2,4-dione			

## SECTION 12: Ecological information

Linuron (ISO)	Acute EC50 24.5 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 0.073 mg/l Fresh water	Aquatic plants - Lemna sp.	96 hours
	Acute EC50 85 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 94 ppm Marine water	Crustaceans - Decapoda - Embryo	48 hours
	Acute LC50 120 ppm Fresh water	Fish - Oreochromis niloticus	96 hours
	Chronic NOEC 0.1 mg/l Fresh water	Crustaceans - Copepoda	21 days
	Chronic NOEC 20 ppm Marine water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 85.5 µg/l Fresh water	Fish - Salmo salar - Yolk-sac larvae	396 days
	Acute EC50 6 µg/l Fresh water	Algae - Scenedesmus acutus	3 days
	Acute EC50 0.12 ppm Fresh water	Daphnia - Daphnia magna	48 hours
Acute LC50 0.89 ppm Marine water	Fish - Cyprinodon variegatus	96 hours	
Chronic EC10 1.2 µg/l Fresh water	Algae - Scenedesmus acutus	3 days	
Chronic NOEC 4.3 to 5.1 µg/l Fresh water	Crustaceans - Crustacea	21 days	
Chronic NOEC 0.13 ppm Marine water	Daphnia - Daphnia magna	21 days	
Chronic NOEC 0.042 ppm	Fish - Oncorhynchus mykiss	80 days	
Methabenzthiazuron (ISO)	Acute EC50 0.0209 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
Metoxuron (ISO)	Acute LC50 122000 µg/l	Crustaceans - Cyclops strenuus	48 hours
prometryn	Acute LC50 160000 µg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 40 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
Terbutylazine	Acute EC50 0.00165 mg/l Fresh water	Algae - Scenedesmus acutus var. acutus	96 hours
	Acute EC50 9700 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2300 µg/l Fresh water	Fish - Danio rerio - Larvae	96 hours
	Chronic NOEC 1 ppm Marine water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 0.62 ppm	Fish - Pimephales promelas	32 days
	Acute EC50 9 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 150 µg/l Fresh water	Aquatic plants - Lemna minor	3 days
	Acute EC50 5000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1600 µg/l Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 2 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
<b>Formic Acid, Part Number G2453-85060</b>			
Formic acid	Acute EC50 151200 to 165600 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute LC50 80000 to 90000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours

### 12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>2D-LC Solution, Part Number 5190-6895</b> Acetonitrile	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>2D-LC Solution, Part Number 5190-6895</b>			
Acetonitrile	-0.34	-	low
Acetone	-0.23	-	low
Atrazine (ISO)	2.59	7.94	low
Chlorotoluron (ISO)	2.41	-	low
Diuron (ISO)	2.84	5.2	low
3-Cyclohexyl-6-dimethylamino-1-methyl-1,	1.85	-	low

## SECTION 12: Ecological information

2,3,4-tetrahydro-1,3,5-triazine-2,4-dione			
Linuron (ISO)	3.2	17.78	low
2-Chloro-N-(2,6-dimethylphenyl)-N-(1H-pyrazol-1-ylmethyl)acetamide	2.13	-	low
Methabenzthiazuron (ISO)	2.64	-	low
Metoxuron (ISO)	1.64	-	low
prometryn	3.51	-	low
Terbutylazine	3.21	-	low
<b>Formic Acid, Part Number G2453-85060</b>			
Formic acid	-2.3	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

**PBT** : Not applicable.

**vPvB** : Not applicable.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

**Additional information** : **Special provisions**  
251, 340



**SECTION 14: Transport information**

	<b>ADR/RID</b>	<b>IMDG</b>	<b>IATA</b>
<b>14.1 UN number</b>	UN3316	UN3316	UN3316
<b>14.2 UN proper shipping name</b>	CHEMICAL KIT	CHEMICAL KIT. Marine pollutant (Acetone)	Chemical kit
<b>14.3 Transport hazard class(es)</b>	9 	9 	9 
<b>14.4 Packing group</b>	II	II	II
<b>14.5 Environmental hazards</b>	Yes.	Yes.	No.
<b>14.6 Special precautions for user</b>	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
<b>Additional information</b>	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.  <b><u>Hazard identification number</u></b> 90  <b><u>Limited quantity</u></b> 0  <b><u>Special provisions</u></b> 251, 340  <b><u>Tunnel code</u></b> (E)	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.  <b><u>Emergency schedules (EmS)</u></b> F-A, _S-P_  <b><u>Special provisions</u></b> 251, 340	The environmentally hazardous substance mark may appear if required by other transportation regulations. <b><u>Passenger and Cargo Aircraft</u></b> Quantity limitation: 10 kg Packaging instructions: 960 <b><u>Cargo Aircraft Only</u></b> Quantity limitation: 10 kg Packaging instructions: 960 <b><u>Limited Quantities - Passenger Aircraft</u></b> Quantity limitation: 1 kg Packaging instructions: Y960  <b><u>Special provisions</u></b> A44, A163

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU Regulation (EC) No. 1907/2006 (REACH)

##### Annex XIV - List of substances subject to authorisation

##### Substances of very high concern

None of the components are listed.

**Annex XVII -** : Not applicable.

**Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles**

##### Other EU regulations

**Europe inventory** : Not determined.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Not listed

**Integrated pollution prevention and control list (IPPC) - Air** : Listed

**Integrated pollution prevention and control list (IPPC) - Water** : Listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
<b>2D-LC Solution, Part Number 5190-6895</b> Chlorotoluron (ISO)	Carc. 2, H351	-	Repr. 2, H361d (Unborn child)	-
Diuron (ISO)	Carc. 2, H351	-	-	-
Linuron (ISO)	Carc. 2, H351	-	Repr. 1B, H360D (Unborn child)	Repr. 2, H361f (Fertility)
2-Chloro-N-(2,6-dimethylphenyl)-N-(1H-pyrazol-1-ylmethyl)acetamide	Carc. 2, H351	-	-	-

**15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number

[Procedure used to derive the classification according to Regulation \(EC\) No. 1272/2008 \[CLP/GHS\]](#)

**SECTION 16: Other information**

Classification	Justification
<b>2D-LC Solution, Part Number 5190-6895</b> Flam. Liq. 2, H225 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Eye Irrit. 2, H319 STOT SE 3, H336 (Narcotic effects) Aquatic Acute 1, H400 Aquatic Chronic 1, H410	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method
<b>Formic Acid, Part Number G2453-85060</b> Flam. Liq. 3, H226 Skin Corr. 1A, H314	On basis of test data Calculation method

**Full text of abbreviated H statements : 2D-LC Solution, Part Number 5190-6895**

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H302 (oral)	Harmful if swallowed.
H312 (dermal)	Harmful in contact with skin.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332 (inhalation)	Harmful if inhaled.
H336 (Narcotic effects)	May cause drowsiness or dizziness. (Narcotic effects)
H351	Suspected of causing cancer.
H360Df (Unborn child and Fertility)	May damage the unborn child. Suspected of damaging fertility.
H361d (Unborn child)	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

**Formic Acid, Part Number G2453-85060**

H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.

**Full text of classifications [CLP/GHS] : 2D-LC Solution, Part Number 5190-6895**

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410	LONG-TERM AQUATIC HAZARD - Category 1
Carc. 2, H351	CARCINOGENICITY - Category 2
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Repr. 1B, H360Df (Unborn child and Fertility)	TOXIC TO REPRODUCTION (Unborn child and Fertility) - Category 1B
Repr. 2, H361d (Unborn child)	TOXIC TO REPRODUCTION (Unborn child) - Category 2
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1
Skin Sens. 1B, H317	SKIN SENSITIZATION - Category 1B
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3, H336 (Narcotic effects)	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

**Formic Acid, Part Number G2453-85060**

Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Skin Corr. 1A, H314	SKIN CORROSION/IRRITATION - Category 1A

**SECTION 16: Other information**

<b>Full text of abbreviated R phrases</b>	: 2D-LC Solution, Part Number 5190-6895	R11- Highly flammable. R40- Limited evidence of a carcinogenic effect. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. R63- Possible risk of harm to the unborn child. R22- Also harmful if swallowed. R20/21/22- Also harmful by inhalation, in contact with skin and if swallowed. R48/22- Also harmful: danger of serious damage to health by prolonged exposure if swallowed. R36- Irritating to eyes. R43- May cause sensitisation by skin contact. R66- Repeated exposure may cause skin dryness or cracking. R67- Vapours may cause drowsiness and dizziness. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R35- Causes severe burns.
<b>Full text of classifications [DSD/DPD]</b>	: 2D-LC Solution, Part Number 5190-6895  Formic Acid, Part Number G2453-85060	F - Highly flammable Carc. Cat. 3 - Carcinogen category 3 Repr. Cat. 2 - Toxic to reproduction category 2 Repr. Cat. 3 - Toxic to reproduction category 3 Xn - Harmful Xi - Irritant N - Dangerous for the environment C - Corrosive
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