Kinetin solution in 70% ethanol

Safety data sheet

Prepared in accordance with Regulation (EC) No. 1907/2006 (REACH)

Version 1.3 | Created: 22 May 2014 | Revised: 1 June 2015

SECTION 1. Identification of the substance/mixture and of the company/undertaking

Product name and description	Kinetin solution. (0.1% w/v kinetin in 70% ethanol)
Trade name/Brand	Not applicable
Synonyms	6-Furfurylaminopurine solution; N6-Furfuryladenine solution
REACH Number	Not applicable, mixture
CAS Number	Not applicable, mixture
EC Number	Not applicable, mixture
Recommended use	This product is a laboratory preparation for educational use only. It should be used in accordance with the instructions in the NCBE *Cauliflower cloning kit* (See Section 16). Kinetin is an adenine-type cytokinin plant hormone that is added to plant culture media such as Murashige and Skoog medium.
Uses advised against	None
Supplier of the product and of this safety data sheet	National Centre for Biotechnology Education (NCBE) University of Reading 2 Earley Gate Whiteknights READING RG6 6AU United Kingdom T: 0118 9873743 F: 0118 9750140 E: NCBE@reading.ac.uk W: www.ncbe.reading.ac.uk
Manufacturer of the product (the kinetin powder, not the solution)	Duchefa Biochemie bv A. Hofmanweg 71 2031 BH Haarlem The Netherlands T: + 31 23 531 90 93 F: + 31 23 531 80 27 E: info@duchefa.nl W: www.duchefa-biochemie.com
Emergency telephone numbers	0118 9873743 (NCBE, University of Reading. 08.30 to17.00 weekdays only) + 31 23 531 90 93 (Duchefa Biochemie. 09.00 to 17.00 CET)

SECTION 2. Hazards identification

Classification according to Regulation (EC) No. 1272/2008 [CLP] Flammable liquids (Category 2)

Label elements **DANGER**

H225	Highly flammable liquid and vapour
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking

Other hazards None

SECTION 3. Composition/information on ingredients

Name of component (Synonym) [CLP index number]	Weight (%)	EC (EINECS) number	CAS number	REACH registration number	Classification under Regulation (EC) No 1272/2008 [CLP]
Ethanol (Ethyl alcohol) [603-002-00-5]	69.5	200-578-6	64-17-5	–	Flamm. Liq. 2 (H225)
Water	29.5	231-791-2	7732-18-5	–	–
Kinetin** (6-Furfurylaminopurine)	0.1	208-382-2	525-79-1	–	Muta. 2 (H341) Resp. Sens. 1 (H334) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)

** *Note that the H statements in the table and in Section 16 to refer to pure kinetin powder. They do not apply to the 0.1% solution of kinetin supplied.*

For the full text of the safety classifications (H statements), refer to Section 16.

SECTION 4. First aid measures

General information	If symptoms persist or in all cases of doubt, seek medical advice. Show this Safety Data Sheet to the doctor in attendance.
Inhalation	Move the casualty to fresh air. If the victim has stopped breathing artificial respiration and/or oxygen may be necessary. Call a doctor immediately.
Skin contact	Wash affected area with water. Seek medical attention if irritation occurs.
Eye contact	Check for and remove contact lenses if present. Rinse opened eye immediately with running water, also wash under the eyelids, for several minutes. Seek medical advice immediately.
Ingestion	Do NOT induce vomiting. Never give an unconscious person anything to drink. If the victim is conscious, they should drink plenty of water. Seek medical attention if the victim shows signs of intoxication.
Self-protection of the first aider	Rinse your hands with water after handling the Azure A solution.
Most important symptoms and effects, both acute and delayed	For ethanol: central nervous system depression, narcosis, damage to the heart.
Indication of any immediate medical attention and special treatment	If in contact with the eyes, flush with water immediately. If ingested, do not induce vomiting.
Advice to doctor	Treat symptomatically.

SECTION 5. Firefighting measures

The product is highly flammable. It is unlikely, however, that users will have sufficient quantities of the solution for this to be a concern.

Extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture
None known.

Advice for firefighters
Wear protective equipment and self-contained breathing apparatus if the quantity of the substance involved warants it.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear suitable personal protection. Ensure adequate ventilation. Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations.

In an emergency, evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up
Dilute with water to 5% v/v, then wash down a foul water drain with plenty of water. After cleaning, wash away traces with water.

Reference to other sections
See Section 13 for disposal instructions.

SECTION 7. Handling and storage

Precautions for safe handling
Wear a lab coat. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition. No smoking. Take measures to avoid the build-up of electrostatic charge. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities
Store in the original packaging, tightly closed and upright in a freezer at –18 to –20 °C. Protect from contamination and keep away from combustible material. Keep out of reach of children.

Specific end use(s)
In the NCBE *Cauliflower cloning kit*, the kinetin solution is added to the plant growth medium.

SECTION 8. Exposure controls/personal protection

Control parameters

Exposure limits
Components with workspace control parameters

Component	CAS Number	Workplace exposure limit		Legal basis
Ethanol	64-17-5	Long term exposure limit (8 hour time-weighted average reference period)	1 000 ppm 1 920 mg/m^3	UK. EH40 WEL
		Short-term exposure limit (15 minute reference period)	3 000 ppm 5 760 mg/m^3	

Biological limit values No information available.
Derived no effect level No information available.
Predicated no effect level No information available.

Exposure controls

Handle in accordance with good laboratory hygiene and safety practice. Wash hands before breaks and after handling the mixture.

SECTION 9. Physical and chemical properties

Appearance Clear, colourless.
Physical state Liquid.
Odour Smells of ethanol.
Odour threshold No data available.
pH No data available.
Melting point / Range –23 °C.
Boiling point / Range 83 °C @ 760 mm Hg.
Flash point 22 °C (Closed cup).
Evaporation rate No data available.
Flammability (solid, gas) Not applicable as the mixture is a liquid.
Ignition temperature > 250 °C.
Explosion limits Lower: 2.5 Vol% Upper 13 Vol %.
Vapour pressure @ 20 °C 59 hPa.
Vapour density No data available.
Density @ 20 °C 0.95 g / ml
Relative density Not applicable as the mixture is a liquid.
Solubility in water Fully miscible.
Solubility in other solvents No data available.
Partition coefficient: n-octanol/water No data available.

Autoignition temperature	Product is not self-igniting.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidising properties	No data available.
Other information	No additional information relevant to the safe use of the mixture.

SECTION 10. Stability and reactivity

Chemical stability	No decomposition if used and stored according to the specifications.
Possibility of hazardous reactions	Ethanol forms an explosive gas mixture with air. Reacts slowly with calcium hypochlorite, silver oxide and ammonia. This generates a fire and explosion hazard. Reacts violently with strong oxidants such as nitric acid, silver nitrate, mercuric nitrate and magnesium perchlorate. This generates a fire and explosion hazard.
Conditions to avoid	Aluminium at higher temperartures. Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials	Strong acids and oxidising agents.
Hazardous decomposition products	Carbon monoxide (CO) and carbon dioxide (CO_2).

SECTION 11. Toxicological information

Acute toxicity

Kinetin
LD50 Intraperitoneal: 450 mg/kg (Mouse)

Ethanol
LD50 Oral: > 10 000 mg/kg (Rat)
LD50 Dermal: > 10 000 mg/kg (Rabbit)
LD50 Inhalative: > 100 mg/l (Rat)

Chronic toxicity

Effects of long-term or repeated exposure: The liquid de-fats the skin. Repeated or prolonged contact with skin may cause dermatitis. The product may have effects on the upper respiratory tract and central nervous system. This may result in irritation, headache, fatigue and lack of concentration. Ethanol consumption during pregnancy may adversely affect the unborn child. Chronic ingestion of alcohol may cause liver cirrhosis. Methanol may have effects on the central nervous system, resulting in persistent or recurring headaches and impaired vision.

Additional toxicological information

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations:
Harmful. Routes of exposure: The component substances can be absorbed into the body by inhalation of its vapour, by skin absorption and by ingestion.
Inhalation risk: A harmful combination of the air will be reached rather slowly on evaporation of this product at 20 °C.
Effects of short-term exposure: The product is irritating to the eyes. Inhalation of high concentrations of the vapour may cause irritation of the eyes and respiratory tract. The component substances may cause effects on the central nervous system.

Carcinogenicity	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.
Sensitisation	No information available.
Mutagenic effects	No information available.
Reproductive effects	No information available.
Developmental effects	No information available.
Target organs	No information available.
Endocrine disruptor information	No information available.

SECTION 12. Ecological information

Toxicity

Aquatic toxicity
Kinetin
Toxicity to fish
LC50 / 96 h / *Oncorhynchus mykiss* (Rainbow trout): > 1 000 mg / L
Toxicity to aquatic invertebrates
LC50 / 48 h / *Daphnia magna*: >1 000 ppm

Ethanol
EC50 > 454 mg/kg (Daphnia)

Persistence and degradability Biodegradable.
Bioaccumulative potential Product is not expected to bioaccumulate.
Mobility in soil No information available.
Additional ecological information Water hazard class I (German regulations; Self-assessment). Slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Results of PBT and vPVB assessment Not applicable.
Other adverse effects None known.

SECTION 13. Disposal considerations

Waste from residues/unused product Dilute with water to 5% v/v, then wash down a foul water drain with plenty of water.
Contaminated packaging Rinse tube with water and dispose of in normal waste according to local regulations. The tube is made of polypropylene and can be recycled.

SECTION 14. Transport information

UN number		
ADR/RID: 1170	IMDG: 1170	IATA: 1170
UN proper shipping name		
ADR/RID: Ethanol solution	IDMG: Ethanol solution	IATA: Ethanol solution
Transport hazard class		
ADR/RID: 3	IDMG: 3	IATA: 3
Packaging group		
ADR/RID: II	IDMG: II	IATA: II
Environmental hazards		
ADR/RID: None	IDMG: None	IATA: None

SECTION 15. Regulatory information

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

National regulations

Class	Share in %
I	3.5
NK	96.5

Chemical Safety Assessment
No information available.

SECTION 16. Other information

Full text of GHS hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.

Refer to the Teacher's guide which accompanies the NCBE *Cauliflower cloning kit*. This can be downloaded from the NCBE's Web site: **www.ncbe.reading.ac.uk/ptc**

The information given in this Safety Data Sheet is based on the present state of our knowledge.

This Safety Data Sheet has been compiled and is solely intended for this product.

This Safety Data Sheet was revised on 1 June 2015, when the older (67/548/EEC [DSD]) safety classifications were deleted and additional information relating to ethanol was added.

END OF SAFETY DATA SHEET