

ANNEX B

Metam-sodium

B.3 Further information

Update June 2008
Revision August 2010

B.3.0 Introductory note [added in August 2010]

This document is based on the updated version of Vol.3 B.3 of the DAR, which was peer-reviewed in June 2008 (PRAPeR 51). In the framework of the resubmission, some amendments were made to the GAP table (in order to clarify the application of the product and the appropriate dilution rate in the case of drip irrigation) and to the re-entry period for man (in case of greenhouse application). These amendments are highlighted in yellow.

B.3.1 Data on application relevant to the active substance (Annex IIA 3.1 to 3.6)

B.3.1.1 Function (Annex IIA 3.1)

Soil fumigant (nematicide, fungicide, herbicide, insecticide)

B.3.1.2 Effects on harmful organisms (Annex IIA 3.2.1)

Metam-sodium acts as fumigant through rapid degradation to Methylisothiocyanate (MITC), which is active on living organisms present in the soil at the time of the application.

B.3.1.3 Translocation in plants (Annex IIA 3.2.2)

The compound is applied before planting of the crop. MITC dissipates through volatilisation and is not present in the soil at the moment of planting or sowing.

B.3.1.4 Fields of use (Annex IIA 3.3)

Agriculture, horticulture (Field and protected crops)

B.3.1.5 Pests controlled and crops protected (Annex IIA 3.4.1, 3.4.2)

The product will control :

- Nematodes : root-knot nematodes (*Meloidogyne spp.*), root-lesion nematodes (*Pratylenchus spp.*), dagger nematodes (*Xiphinema*), cyst nematodes (*Heterodera spp.*, *Globodera spp.*), stem nematodes (*Ditylenchus spp.*), free-living nematodes (*Trichodorus spp.*).
- Soil fungi : vascular diseases (*Fusarium spp.*, *Verticillium spp.*), root rots (*Fusarium spp.*, *Rhizoctonia spp.*, *Pyrenochaeta lycopersica*, *Phytophthora sp.*)
- Weeds : seeds (*Solanum spp.*, *Portulaca oleracea*, *Amaranthus spp.* ...), rhizomes (*Cyperus sp.*, *Convolvulus sp.*)
- Insects : insects present in the soil at the time of the application of the product (larvae, eggs, pups, adults)"

Plants to be protected:

- Vegetables in greenhouse and open field
- Nurseries : trees, strawberry, tobacco
- Ligneous plants : grape vines, fruit trees
- Ornamentals : bulbs, cut flowers

B.3.1.6 Effects achieved - mode of action (Annex IIA 3.4.3, 3.5.1)

The product has no direct effect on the crop. By reducing the level of harmful organisms, it allows a quick set-up of the plant and a vigorous growth.

Grown in a healthy soil, the plant is less sensitive to diseases and pests, and achieves better yield and better quality (color, size, regularity, precocity).

Methylisothiocyanate (MITC) interferes at the level of the enzymatic activity. It disturbs the absorption of oxygen during the process of the cellular respiration by chelating enzymes having a metal radical. The efficacy on nematodes is probably due to the ability of MITC to deactivate the sulfuric groups of essential enzymes.

B.3.1.7 Information relative to the formation of active metabolites and degradation products (Annex IIA 3.5.2, 3.5.3)

MITC (methylisothiocyanate) is the main metabolite and is the substance active against the target organisms.

IUPAC:	methyl isothiocyanate
CA name:	isothiocyanatomethane
ISO:	methyl isothiocyanate
CAS:	556-61-6
EEC:	209-132-5
CIPAC:	8214
Molecular mass:	73.1
Molecular formula:	CH ₃ NCS

B.3.1.8 Information to the possible occurrence of the development of resistance or cross-resistance (Annex IIA 3.6)

Resistance is unlikely to occur since the product acts on various enzymes involved in the cellular respiration process. Indeed, the appearance of a resistant strain of organisms would mean that such an organism is capable to modify and adapt at the same time numerous of its enzymes which is known to be practically impossible.

B.3.2 Data on application relevant to the plant protection products (Annex IIIA 3)

B.3.2.1 Fields of use (Annex IIIA 3.1)

See B.3.1.4

B.3.2.2 Nature of the effects on harmful organisms (Annex IIIA 3.2)

See B.3.1.2

B.3.2.3 Pests controlled and crops protected (Annex IIIA 3.3)

Rate of application (Annex IIIA 3.4)

Concentration of active substance in material used (Annex IIIA 3.5)

Description of the method of application, type of equipment used and type and volume of diluent per unit of area or volume (Annex IIIA 3.6)

Number and timing of applications and duration of protection afforded (Annex IIIA 3.7)

The metam-sodium aqueous solutions are generally used without further dilution.

Application is done by direct injection or through drip-irrigation system.

- *Injection.* Metam-sodium is injected in the field at 15 cm depth and immediately homogenised within the soil by spading or roto-tilling in a depth of 25 cm; this allow a good diffusion of the metam-sodium in the whole mass of soil, thus enabling MITC to reach all infested sites. Soil surface is sealed with a roller in order to keep the fumes longer in the soil.

In grape vines, metam-sodium is applied occasionally and very locally by injection in the soil at 40 cm depth at the site of the de-rooted vine (0.2 L/m²). It should be noted that the corresponding dose rate of 1020 kg a.i./ha, as given in the GAP table below, refers to the specific spot treated and thus, the application rate on full field basis will be considerably lower.

- *Drip-irrigation.* Metam-sodium is directly injected in the drip-irrigation system by mean of a dosing pump or a venturi set, thus applied as a dilution. Application occurs under plastic mulch to keep the active fumes longer in contact with the organisms to be controlled.

Details of the uses are given in the table below.

Summary of representative uses evaluated (metam-sodium)

Crop and/or situation	Member State or Country	Product name	F G or I	Pests or Group of pests controlled	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
(a)			(b)	(c)	Type (d-f)	Conc. of a.s. (i)	method kind (f-h)	growth stage & season (j)	number min max (k)	interval between applications (min)	kg as/hl min max	water l/ha min max	kg as/ha min max		
Carrot	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection + incorporation at 25 cm by rotavation	April-June	1	n.a.	n.a.	No dilution	408	n.a.	(One application every two years in carrot)
Carrot	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection + incorporation at 25 cm by rotavation	Oct-Dec	1	n.a.	n.a.	No dilution	408	n.a.	(One application every two years in carrot)
Corn salad (=lamb’s lettuce)	FR, ES, BE, DE, IT	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection + incorporation at 15 cm by rotavation	April-Aug	1	n.a.	n.a.	No dilution	306	n.a.	
Cucumber	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	G	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Drip-irrigation under a plastic film on the planting row	June-Aug	1	n.a.	n.a.	No dilution 45000-180000	459	n.a.	see note ** below table
Eggplant / aubergine	CY, ES, FR, EL, IT, MT, NL, PT	*	G	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Drip-irrigation under a plastic film on the planting row	June-Aug	1	n.a.	n.a.	No dilution 60000-240000	612	n.a.	see note ** below table

WARNING: This document is part of an EC evaluation data package and should not be used in isolation. Registration must be granted on the basis of this document.

Crop and/or situation	Member State or Country	Product name	F G or I	Pests or Group of pests controlled	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
(a)			(b)	(c)	Type (d-f)	Conc. of a.s. (i)	method kind (f-h)	growth stage & season (j)	number min max (k)	interval between applications (min)	kg as/hl min max	water l/ha min max	kg as/ha min max		
Pepper	BE, CY, ES, FR, EL, HU, IT, MT, NL, PL, PT, UK	*	G	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Drip-irrigation under a plastic film on the planting row	June-Aug	1	n.a.	n.a.	No dilution 60000-240000	612	n.a.	see note ** below table
Potato	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection + incorporation at 25 cm by rotavation	Sept-Nov	1	n.a.	No dilution		153	n.a.	
Strawberry	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Drip-irrigation under a plastic film on the planting row	Jul-Oct	1	n.a.	n.a.	No dilution 60000-240000	612	n.a.	see note ** below table
Tomato	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	G	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Drip-irrigation under a plastic film on the planting row	Feb-Aug	1	n.a.	n.a.	No dilution 60000-240000	612	n.a.	see note ** below table
Tomato	DE, BE, CY, ES, FR, MT, EL, PL, HU, IE, IT, NL, PT, UK	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection at 5 cm + coverage by 10 cm of soil	March	1	n.a.	n.a.	No dilution	612	n.a.	
Grape	FR, IT, DE, ES, EL, HU, PT	*	F	Nematodes Soil fungi Weeds Insects	SL	510 g/l	Soil injection at 40 cm at the site of the de-rooted vine (0.2 L/m²)	Autumn. Before replanting	1	n.a.	n.a.	No dilution	1020	n.a.	Spot treatment see note *** below table

WARNING: This document is part of an EC evaluation data package and may not be used for any other purpose without the written consent of the European Commission. Registration must not be granted on the basis of this document.

* : The preparation is identical to the technical active substance. Different tradenames are used in different EU member states: Solasan, Terrasan, Monam, Nemasol, Traitam Sol, Metam sodio, etc.

** Note: Diluted with water directly in the drip irrigation lines at concentration 0.5 - 2.0 % v/v

*** Note: Although the intended use in grapes is at the higher dose of 1020 kg a.s./ha, only an occasional treatment would be necessary (isolated cases of few trees in a row of vines), and the spot treatment at the foot of the de-rooted vine would most likely lead to a lower exposure of the operator than the treatment of a full field. The application rate on full field basis will be considerably lower than 1020 kg a.i./ha. Furthermore, the time between disinfection and the harvest of new grapes is considerably longer than in vegetable growing, therefore residue trials in this crop were considered less relevant. Taking this into account, the RMS considers this use in the EU-GAP table to be acceptable and covered by the risk assessments performed for the other intended uses. Refinements may however be considered at Member State level, if deemed necessary.

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|----------|-----|--|------|---|
| Remarks: | (a) | For crops, the EU and Codex classification (both) should be used; where relevant, the use situation should be described (e.g. fumigation of a structure) | (i): | g/kg or g/L |
| | (b) | Outdoor or field use (F), glasshouse application (G) or indoor application (I) | (j) | Growth stage at last treatment (BBCH Monograph, Growth stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application |
| | (c) | e.g. biting and suckling insects, soil born insects, foliar fungi, weeds | (k) | The minimum and maximum number of application possible under practical conditions of use must be provided |
| | (d) | e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR) | (l) | PHI - minimum pre-harvest interval |
| | (e) | GCPF Codes - GIFAP Technical Monograph No 2, 1989 | (m) | Remarks may include: Extent of use/economic importance/restrictions |
| | (f) | All abbreviations used must be explained | | |
| | (g) | Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench | | |
| | (h) | Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated | | |

WARNING: This document forms part of an EC evaluation data package and should not be read in isolation. Residue data must not be printed on the basis of this document.

B.3.2.4 Minimum waiting periods or other precautions between last application and sowing or planting succeeding crops - Limitations on choice of succeeding crops (Annex IIIA 3.8)

The waiting period between treatment and planting or sowing the new crop depends on the temperature, the moisture, the structure and texture of the soil. For normal loose soils with mean moisture content the following indicative waiting periods apply :

Soil temperature at 10 cm depth	Waiting period between application and planting/sowing
15 - 18 °C	13 - 15 days
12 - 15 °C	16 - 20 days
8 - 12 °C	21 - 35 days
6 - 8 °C	36 - 45 days

To determine if a new crop can be planted or sown without risk of phytotoxicity, a cross test is recommended.

B.3.2.5 Proposed instructions for use as printed, or to be printed, on labels (Document C)

A draft label was proposed for the formulation (doc. J).

The use of metam-sodium is recommended when the pressure of harmful organisms does not allow achieving a profitable crop. The use of metam-sodium is compatible with alternatives technologies of soil disinfection like soil-solarization.

For a long lasting disinfection, it is advisable to apply full rate of product, in a well-prepared soil, with a careful technique of application.

B.3.3 Summary of data on application

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B.3.4 Further information on the active substance (Annex IIA 3.7 to 3.9)**B.3.4.1 Recommended methods and precautions relating to handling, storage, transport, fire (Annex IIA 3.7)**

This information is presented under the form of a safety data sheet pursuant to Article 27 of Council Directive 67/548/EEC.

Storage:

Store and handle in accordance with all current regulations and standards.
Keep in the original container in a cool well ventilated place.
Do not re-use container.
Do not store above 35 °C.

Handling:

Handle in accordance with good industrial hygienic and safety procedures.
Avoid eye and skin contact.
Avoid inhalation of aerosol or vapour.
Have eye bath immediately available at any location where eye contact can occur.
Provide an emergency shower in the immediate work area.

Transport regulations:

ROAD TRANSPORT - ADR/RID :

Class : 8
UN number: UN 3267
Packing Group : III
Proper shipping name: Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)
Hazard Identification No.: 80

SEA TRANSPORT - IMDG :

Class : 8
UN number: UN 3267
Packing Group : III
Marine Pollutant : Yes
Proper shipping name : Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)

AIR TRANSPORT - IATA :

Class : 8
UN number: UN 3267
Packing Group : III
Proper shipping name : Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)

Fire-fighting procedures:

Suitable extinguishing media: Carbon dioxide, dry chemicals, waterspray, alcohol resistant fire fighting foam.

Unsuitable extinguishing media: A bound waterjet.

Exposure hazard:

Combustible liquid at high temperature.

Fire or heating to decomposition can cause toxic vapours (nitrogen oxides, carbon oxides and sulphur oxides).
Keep container cool by spraying with water if exposed to fire.
If possible remove other containers from area of fire.
Prevent contamination of soil, drains and surface water.

Special protective equipment for fire-fighters:

Wear self-contained breathing apparatus.

B.3.4.2 Procedures for destruction or decontamination of the active substance, contaminated packaging and contaminated materials

B.3.4.2.1 Controlled incineration - Pyrolytic behaviour under controlled conditions at 800°C (Annex IIA 3.8.1)

The halogen content of metam-sodium is less than 60%; information on the pyrolytic behaviour of the active substance is thus not required.

Instruction for safe disposal:

Dispose according to mentioned directive and national legislation. Report incidental loss to the authorities according to local legislation.

B.3.4.2.2 Methods other than controlled incineration for disposal of the active substance, contaminated packaging and contaminated materials (Annex IIA 3.8.2)

No other methods are proposed.

B.3.4.3 Emergency measures in case of an accident; Methods for decontamination of water in the case of an accident (Annex IIA 3.9)

First-aid procedures

Inhalation:

Remove immediately from exposure
Remove patient to fresh air.
If breathing is difficult give oxygen.
Apply artificial respiration if patient is not breathing.
Seek medical treatment when anyone has symptoms apparently due to inhalation.

Eye contact:

Flush immediately with plenty of water for at least 15'.
If irritation persists, get medical attention.

Skin contact:

Take off immediately all contaminated clothing.
Wash thoroughly with soap and water.
If irritation persists seek medical attention.

Ingestion:

Give large quantities of water to drink.
Do not induce vomiting.
No specific antidote.
Treat symptomatically.

Accidental release procedures:*Precautions with respect to individuals:*

Avoid contact with skin, eyes, clothing.
Keep all non-essential personnel away from area.
Keep upwind.

Precautions with respect to environment:

Prevent contamination of soil, drains and surface water.
Contain leaking liquid with sand, earth or absorbent material for organic liquids.
Small spillage: flush area with water if sewers are linked with an appropriate sewage treatment plant.

Cleaning up spillage:

Contain leaking liquid with absorbing materials or flush area with water if sewers are linked with an appropriate sewage treatment plant or contain with sand or earth and clean up according to local regulations.
Absorb contaminated water in earth or sand for later disposal.

Decontamination

It is not possible to decontaminate surface water in cases of accidental release of Metam. Metam is highly soluble in water, and it is known for its rapid transformation to MITC. In cases of accidental contamination of surface water, metam will be immediately diluted in the water volume, and it will degrade within minutes/hours. The MITC formed will be partly degraded, partly gradually released to the atmosphere. Conclusion: there are no specific procedures available; focus should be on prevention of contamination.

B.3.5 Further information on the plant protection product METAM-SODIUM 510 g/L (Annex IIIA 4.1)**B 3.5.1 Packagings, suitability of the packaging material to its content (Annex IIIA 4.1)****B.3.5.1.1 Description and specification of the packaging and materials used in packaging, size, capacity, size of openings, type of closure and seals (Annex IIIA 4.1.1)**

Metam-sodium is commercialized in 60 L or 200 L Polyethylene drums, or in 1000 L ecobulk containers.

60 L drum

Material: high density, low pressure polyethylene (HDPE).

Dimensions: width/depth: 334 mm x 398 mm (+/- 5 mm)
height: 630 mm (+/- 6 mm)

Weight: 2550 g

Capacity: minimum: 61.5 L
average: 62.5 L

Colour: blue with black plugs

Closures: 1 sealable closure (2") in polyethylene
a filling opening with inner diameter of 46.5 mm (+/- 0.3 mm)

200 L drum

Material: high density, low pressure polyethylene (HDPE)

Dimensions: external diameter: 578 mm (+/- 5 mm)
external height: 935 mm (+/- 5 mm)

Theoretical weight: tara: +/- 8.6 kg

Nominal capacity: minimum 221 L

Colour: blue with white plugs

Closures: 2 bungholes (2" and 2") with sealable polyethylene plugs

1000 L ecobulk container

Material: IBC with timber pallet to which is screw-bolted the outer grid frame.
Neutral inner container in HMW-HDPE.

Dimensions of the container: 1160 x 1200 x 1000 mm

Weight: Tare: +/- 66.5 kg

Capacity: 1000 L

Colour: white

Closures: filling: opening on top, with plain screw cap and 'O' ring.
discharge: a screwable comlock-butterfly valve.

B.3.5.1.2 Suitability of the packaging and closures (Annex IIIA 4.1.2)**60 L drum**

The drums are tested and have a UN-code marked in the body
UN-3H1/Y 1,9/200-*/D/BAM 5483-WIVA

200 L drum

The drums are tested and have a UN-code marked in the body:
UN-1H1/Y 1,9-200-*/NL/WIVA 1150
or UN-1H1/Y 1,8-200-*/D/BAM/9641-WIVA

1000 L ecobulk container

The containers are tested and have the following certification:
UN 31/HA 1/Y

B.3.5.1.3 Resistance of the packaging material to its contents (Annex IIIA 4.1.3)

A shelf life study with Metam-sodium solution at ambient temperature (cfr. B.2.2.19) demonstrated that there were no signs of degradation of the container material. The stability of the HDPE packaging was not affected in the test.

B.3.5.2 Procedures for cleaning application equipment and protective clothing (Annex IIIA 4.2)

Metam-solutions are not sprayed with a conventional sprayer, but with a dedicated apparatus for Metam-sodium or -potassium. Therefore, there is no need for the applicator to clean the tank of the equipment after use. Some machines of applications pump up the product directly from the packaging of origin, in these cases there is tank to be rinsed. Tools entering into contact with the Metam-solutions are easily rinsed, because the product is highly soluble in water.

Protective clothing should be cleaned as follows:

- Cleaning of clothing: in washing machine with water and soap
- Cleaning of rubber boots: with water and soap
- Cleaning of respirator : with water and soap

B.3.5.3 Re-entry intervals, waiting periods and other precautions to protect man, livestock and the environment**B.3.5.3.1 Pre-harvest intervals, re-entry intervals or withholding periods to minimize residues in crops, plants, plant products, treated areas or spaces (Annex IIIA 4.3.1)****Cfr. B.7.10:**

-Pre-harvest interval for the representative uses:
Not relevant

-Re-entry period for livestock:
Not applicable. Metam-sodium is used on bare soil before planting or sowing and not on areas to be grazed.

-Re-entry period for man to crops:

Field

Worker re-entry exposure calculations based on measurements of MITC concentrations in air are below the AOEL proposed by the RMS.

Greenhouse

After soil decontamination in glasshouses, workers should not enter the greenhouse shortly after soil injection application and a waiting period of 120-168 h 18 days with a respiratory protection is necessary to be below the AOEL.

-Withholding period for animal feeding stuffs:
Not applicable based on the representative uses.

-Waiting period between application and crop sowing or planting the crop to be protected:

The waiting period between treatment and planting or sowing the new crop depends on the temperature, the moisture, the structure and texture of the soil. For soils with mean moisture content the following indicative waiting periods are proposed by the applicant:

Soil temperature at 10 cm depth	Waiting period between application and planting/sowing (days)
15 - 18 °C	13 - 15
12 - 15 °C	16 - 20
8 - 12 °C	21 - 35
6 - 8 °C	36 - 45

To determine if a new crop can be planted or sown without risk of phytotoxicity, a cress test is recommended.

-Waiting period between application and handling:

Not applicable. No residues in crops.

-Waiting period between last application and sowing or planting succeeding crops:

The waiting period between treatment and planting or sowing the new crop depends on the temperature, the moisture, the structure and texture of the soil. For soils with mean moisture content the following indicative waiting periods are proposed by the applicant:

Soil temperature at 10 cm depth	Waiting period between application and planting/sowing (days)
15 - 18 °C	13 - 15
12 - 15 °C	16 - 20
8 - 12 °C	21 - 35
6 - 8 °C	36 - 45

To determine if a new crop can be planted or sown without risk of phytotoxicity, a cress test is recommended.

B.3.5.3.2 Information on any specific agricultural, plant health or environmental conditions under which the preparation may or may not be used (Annex IIIA 4.3.2)

Not applicable

B.3.5.4 Recommended methods, precautions and handling procedures to minimize the risks relating to warehouse storage, user level storage, transport, fire - Detailed procedures for use in the event of an accident during transport, storage or use (Annexes IIIA 4.4 and 4.5)

This information is presented under the form of a safety data sheet pursuant to Article 27 of Council Directive 67/548/EEC.

Storage:

Store and handle in accordance with all current regulations and standards.

Keep in the original container in a cool well ventilated place.

Do not re-use container.

Do not store above 35 °C.

Handling:

Handle in accordance with good industrial hygienic and safety procedures.

Avoid eye and skin contact.

Avoid inhalation of aerosol or vapour.

Have eye bath immediately available at any location where eye contact can occur.
Provide an emergency shower in the immediate work area.

Transport regulations:

ROAD TRANSPORT - ADR/RID :

Class : 8
UN number: UN 3267
Packing Group : III
Proper shipping name: Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)
Hazard Identification No.: 80

SEA TRANSPORT - IMDG :

Class : 8
UN number: UN 3267
Packing Group : III
Marine Pollutant : Yes
Proper shipping name : Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)

AIR TRANSPORT - IATA :

Class : 8
UN number: UN 3267
Packing Group : III
Proper shipping name : Corrosive liquid, basic, organic, n.o.s. (METAM SODIUM aqueous solution 42%)

Fire-fighting procedures:

Suitable extinguishing media: Carbon dioxide, dry chemicals, waterspray, alcohol resistant fire fighting foam.
Unsuitable extinguishing media: A bound waterjet.
Exposure hazard: Combustible liquid at high temperature.
Fire or heating to decomposition can cause toxic vapours (nitrogen oxides, carbon oxides and sulphur oxides).
Keep container cool by spraying with water if exposed to fire.
If possible remove other containers from area of fire.
Prevent contamination of soil, drains and surface water.
Special protective equipment for fire-fighters: Wear self-contained breathing apparatus.

Protective clothing and equipment:

Based on the exposure risk assessments, the following protective clothing and equipment is proposed:

Operators:

- During loading: gloves
- During application: gloves (should not be taken inside the tractor cabin), rubber boots, respiratory protective equipment (half-mask with combination filter A1P2)

Workers:

- After field application: no specific protective equipment is required for re-entry tasks
- After greenhouse application: for unscheduled re-entry shortly after application (duration max 1-2 hours),

or longer exposure during removal of the plastic tarp (min. 7 days after application) : respiratory equipment (A1P2 type filter mask)

Gloves: the UK predictive operator exposure model (POEM) assumes a nominal transmission to skin of 5% during mixing/loading and 10 % during application.

Respiratory equipment: according to the “Uniform Principles for Safeguarding the Health of Applicators of Plant Protection Products”, Lundeñ et al. 1992 (BBA model); half-mask with combination filter A1P2 has a reduction coefficient (inhalatory) of 0.02.

Procedures to minimize the generation of waste:

To avoid surplus of product after the application, one should calculate accurately the needed quantity of product based on the surface to be treated and the dose rate per hectare.

Empty packaging is either recycled by or under supervision of the local distributor, or collected by local organisations specialised in collection of plant protection products. Detailed and more specific procedures will be set at Member State level.

First-aid procedures

Inhalation:	Remove immediately from exposure Remove patient to fresh air. If breathing is difficult give oxygen. Apply artificial respiration if patient is not breathing. Seek medical treatment when anyone has symptoms apparently due to inhalation.
Eye contact:	Flush immediately with plenty of water for at least 15'. If irritation persists, get medical attention.
Skin contact:	Take off immediately all contaminated clothing. Wash thoroughly with soap and water. If irritation persists seek medical attention.
Ingestion:	Give large quantities of water to drink. Do not induce vomiting. No specific antidote. Treat symptomatically.

Accidental release procedures:

Precautions with respect to individuals:

Avoid contact with skin, eyes, clothing.
Keep all non-essential personnel away from area.
Keep upwind.

Precautions with respect to environment:

Prevent contamination of soil, drains and surface water.
Contain leaking liquid with sand, earth or absorbent material for organic liquids.
Small spillage : flush area with water if sewers are linked with an appropriate sewage treatment plant.

Cleaning up spillage:

Contain leaking liquid with absorbing materials or flush area with water if sewers are linked with an appropriate sewage treatment plant or contain with sand or earth and clean up according to local regulations.
Absorb contaminated water in earth or sand for later disposal.

B.3.5.5 Procedures for destruction or decontamination of the formulation and its packaging

B.3.5.5.1 Neutralization procedures for use in the event of accidental spillages (Annex IIIA 4.6.1)

Not applicable

B.3.5.5.2 Controlled incineration - Pyrolytic behaviour of the active substance under controlled conditions at 800E C (Annex IIIA 4.6.2)

Pyrolytic behaviour

Not required - the preparation does not contain halogens.

Instructions for safe disposal

Dispose according to mentioned directive and national legislation.

Report incidental loss to the authorities according to local legislation

B.3.5.5.3 Methods other than controlled incineration for disposal of the plant protection product, contaminated packaging and contaminated materials (Annex IIIA 4.6.3)

No other methods are proposed.

B.3.6 References relied on

none