





MATERIAL SAFETY DATA SHEET <i>according to the 1907/2006/CE Regulation</i>		Review: 13/01/2012	Rev.#: 10
PRODUCT:	RAISAN-51	Replaces: 08/06/2010	Page 1/6

1.- IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Company:	LAINCO, s.a.	Address:	Av. Compositor Bizet, 8-12; Pol. Ind. Can Jardí; 08191 RUBI (Barcelona) SPAIN		
Telephone:	(+34) 93 586 20 15	Fax:	(+34) 93 586 20 16	E-mail:	lainco@lainco.es
Commercial name:	RAISAN-51	Registration number:	14.330 (MAPYA - Spain)		
Use of the product:	Disinfectant.				
Real effect:	Interferes metal radical enzymes by chelation and prevents the oxygen absorption in cellular respiration. It has fungicidal, insecticidal, nematicidal and herbicidal activity.				
Emergency telephone: NATIONAL INSTITUTE OF TOXICOLOGY (Schedule: 24 h.)				(+34) 91 562 04 20 (SPAIN)	

2.- HAZARDS IDENTIFICATION

SYMBOLS OF DANGER		
	Corrosive	Dang. to the environment
Risk Phrases	R20/22: Harmful by inhalation and if swallowed. R31: Contact with acids liberates toxic gas. R34: Causes burns. R40: Limited evidence of a carcinogenic effect. R43: May cause sensitization by skin contact. R48/22: Harmful: danger of serious damage to health by prolonged exposure if swallowed. R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R63: Possible risk of harm to the unborn child.	
Other Dangers	<i>In contact with soil, water and oxygen is rapidly degraded producing toxic gases.</i>	

3.- COMPOSITION / INFORMATION ON INGREDIENTS

General composition:	51,0% w/v Metam-sodium + 70,5% w/v Solvents and coadjuvants					
Hazardous components	Content (% w/w)	EINECS #	CAS #	Classification		OBSERVATIONS
				Symbols	Risk Phrases	
Sodium methyldithiocarbamate	42,33%	205-293-0	137-42-8	C, N	R22, R31, R34, R43, R50/53	CLP Classification GHS05, GHS07, GHS09 (Wng) - H302, H314, H317, H410

4.- FIRST AID MEASURES

	Symptoms and effects	Actions to carry out
Contact / Skin	Pruritus, reddening of the skin, contact dermatitis.	Remove clothing contaminated with the product immediately. Wash it before using again. Wash the affected body zones with abundant water and soap, avoiding rubbing these zones.
Contact / Eyes	Conjunctivitis, watering, photophobia.	Wash the eyes with abundant water at least during 15 minutes. In order to be sure that the washing is complete, the eyelids must remain separated from the eyeball. Do not forget to retire the contact lenses in case the victim had them.
Ingestion	Gastrointestinal disorders. Nausea, vomiting, diarrhoea, abdominal pain. Hepatic insufficiency. Ataxia, confusion, convulsions, extrapyramidal syndrome. Bradykinesia. Lethargy, paralysis. Thyroid hyperplasia. Possible effect ANTABUSE when ingested simultaneously with alcohol.	Do not provoke vomit. Dilute the ingested product by administering copious amounts of water. If the person is unconscious, lay him side down with the head lower than the rest of the body and the knees bended. Administer activated carbon and a saline type laxative (sodium, magnesium or similar sulphate) with special care in children and persons with hepatic alterations. Keep the victim in rest position. Seek medical assistance in order to perform a gastric lavage. Control of ANTABUSE effect.



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Inhalation	Severe irritation of mucous membranes and respiratory tract. Cough, dyspnea, increase of mucous secretions.	Remove the person from the contaminated zone. Put him in rest position, nearly straight, with untied clothing. If necessary, apply artificial respiration.
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General advices:

- ✓ DO NOT LEAVE THE INTOXICATED PERSON ALONE AT ANY TIME.
- ✓ In case of symptoms due to inhalation, swallowing or contact of the product, seek medical advice and show the product's label or this material safety data sheet.
- ✓ Symptomatic treatment. In case of convulsions administer diazepam or phenytoin if diazepam does not make effect.

5.- FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Carbon dioxide (CO ₂), pulverized water, chemical powder or foam.
NON suitable extinguishing media:	Do not use water pressure jet. Dilution with water may generate toxic fumes.
Combustion products:	May give off toxic and flammable fumes as Methyl Isothiocyanate (MIT), Hydrogen Sulphide or Nitrogen and Sulphur Oxides.
Special measures to consider:	Cool the drums/containers by water spraying and in case there is an explosion keep a security distance. Maintain the zone free of people, keeping them at a minimum distance of security (100 metres). Avoid using great volumes of water, in order to minimize the extension of the product. Dilution with water may generate toxic fumes. Work always in favour of the wind or in right angle respect to it.
Specific hazards during fire fighting:	Exposed to high temperatures and in contact with soil, water and oxygen can produce toxic and flammable gases.
Protective equipment:	Wear the basic protective equipment for fire extinction. Suitable breathing device and protective clothing (suit, gloves of PVC and rubber boots).

6.- ACCIDENTAL RELEASE MEASURES

Personal precautions	Environmental Precautions	Attention
Avoid long contact with the product and contaminated clothes. Keep a minimum safety distance of 50 meters.	Avoid the entry of the product into the water course or the sewers network as well as in zones with vegetation. Warn the competent authorities in case the spill enters into the sewage system or the water course.	Do not spray ground with water. In contact with water is degraded producing toxic gases.
Personal protection	Detoxification and cleaning up	Neutralization
Wear protective clothes (suit, gloves and plastic boots). Carry an appropriate breathing device.	Avoid the dispersion of the product with mechanical barriers and absorb or retain the liquid with sand, clay or any other appropriate absorbent material. All the residues will be placed to a safe place to proceed with their elimination. Wash the area with caution, considering that in contact with water is degraded producing toxic gases. Avoid contamination of drains or water courses.	DNP

7.- HANDLING AND STORAGE

Handling
General precautions: <ul style="list-style-type: none">- Handle the product container with care, avoiding, during its transport, crushes with heavier products and not letting it fall down.- Before applying the product be sure that the equipment you will use is the proper one and it is in perfect state.- Follow the instructions for the product preparation indicated on the label of the container.- Mark the treated zones, forbidding people not wearing an appropriate protective equipment to enter.
Specific conditions: <ul style="list-style-type: none">- Do not apply to established crops or greenhouses with crops in the inside.- Apply to the soil by injection, through drip irrigation, or located in drills with appropriate equipment and covering immediately with plough land.- After application, surface must be "sealed" by coating with a film of plastic or irrigation, over 15 days.- In order to eliminate the phytotoxic residues, 5 or 6 days before sowing or transplanting, must carry out labours of soil ventilation.- In rich in organic matter soils is essential to carry out soil ventilation and a germination test.- Ground must be without cultivation, well carved, sufficiently moist and the temperature between 10-15°C.- Do not mix with any product.

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Storage

Temperature:	Store at room temperature. At low temperatures it may crystallise. Heat slightly and dissolve before using.
Decomposition products:	Methyl Isothiocyanate (MIT) (main product), carbon sulphide, sulphydric acid, methylamine, carbonyl sulphide, nitrogen disulphide, N'-dimethylthiourea, thiourea and sulphur.
Dangerous reactions:	In contact with soil, water, oxygen and acids gives off toxic gases.
Storage conditions:	Store in original packages tightly closed and in a cool, dry and well ventilated area. Use polyethylene packages, sealed.
Incompatible materials:	In aqueous solution corrodes aluminum, copper, zinc and bronze.

Specific uses

Authorized uses indicated in the label of the product. Reserved use to agriculturists and professional applicators.

8.- EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure limit values**

VLA-ED:	--	VLA-EC:	--	VLB:	--
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Occupational exposure controls**OCCUPATIONAL EXPOSURE CONTROLS**

Respiratory protection:	Suitable respiratory device. In case of fire autonomous breathing equipment must be used.
Hand protection:	PVC gloves.
Eye protection:	Protective glasses or facial mask of total protection.
Skin protection:	Suit. Rubber boots (with the trousers on the boots).
Other protections:	Have in hand the appropriate devices to wash eyes or skin in case of an accident. Work in places with appropriate ventilation and far from possible ignition sources. Work always in favour of the wind. Avoid the skin contact with the product and inhalation of aerosol / vapours. Do not eat, drink, or smoke during the handling of the product. Take off the stained or soaked clothing with product immediately and wash with water and soap before using it again. Do not put dirty rags, stained with the product in the pockets. Avoid the contact with the product.

ENVIRONMENTAL EXPOSURE CONTROLS

Observe the normal precautions when working with with this type of products.

9.- PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Orange liquid	Boiling point/range:	Approx. 100°C
Odour:	Characteristic	Vapour pressure:	DNP
pH (1% water solution):	10,0 - 11,0	Melting point:	DNP
Density:	1,20 - 1,22 g/ml	Flash point:	> 60°C
Water solubility:	Totally soluble	Flammability (solid-gas):	Non flammable
Explosive properties:	Non explosive	Auto-flammability:	> 400°C
* Solvent-oil solubility: (g/L, 20°C)	Acetone, ethanol, kerosene and xylene: <5 Practically insoluble in other organic solvents.	Oxidising properties:	Non oxidising
* Partition coef. (n-octanol/water):	Log P < 1 (25°C)	Viscosity:	--
Other information:	--		

* Data referred to the active matter (Metam-Sodium)

10.- STABILITY AND REACTIVITY

Stability:	Stable in aqueous solutions of 32-35%, being easier its degradation at the same time as its dilution increase. Total stability stored in its original packing two years after.
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Conditions to avoid:	High temperatures and contact with acid substances.
Materials to avoid:	The active matter (Metam-Sodium) reacts with other fumigants (Dibromine ethylene, 1,3-Dichloropropane and 1,2-Dibromine-3-Chloropropane) that reduce its degradation.
Hazardous decomposition products:	When diluted in water is degraded into Methyl Isothiocyanate (mostly) and Hydrogen Sulphide (both toxic). In contact with strong acids can be decomposed into Carbon Disulphide and Methylamine (flammable gases).

11.- TOXICOLOGICAL INFORMATION

Routes of exposure:	By ingestion, eyes and skin contact and inhalation.				
Acute and chronic effects:	LD₅₀ (oral-rat): > 500 mg/Kg	LD₅₀ (dermal-rat): > 2000 mg/Kg	LD₅₀ (inhalation-rat): > 4,5 mg/L (4h)		
Irritation:	Skin: Corrosive.	Eyes: Corrosive.	Respiratory System: Corrosive.		
Sensitisation:	May cause sensitization by skin contact.				
Carcinogenicity:	No evidence known.				
Mutagenicity:	No evidence known.				
Reproductive toxicity:	No evidence known.				
Narcosis:	No data available.				
Other information:	NOEL MIT (decomposition product): 10 mg/L (2 years; rats; in water intake) 20 mg/L (2 years; mice; in water intake)				

12.- ECOLOGICAL INFORMATION

* Ecotoxicity					
✓ Toxicity for birds: LD ₅₀ oral-acute (quail): approx. 1200 mg/Kg					
✓ Toxicity for fish and the aquatic environment: LC ₅₀ (96h), in Poecilia Reticulata: > 10 mg/L LC ₅₀ (96h), in Lepomis Macrochirus: < 1 mg/L EC ₅₀ (48h), in Daphnia: > 5 mg/L					
Non toxic to bees when used as directed.					
Mobility / Bioaccumulation					
✓ Metam-Sodium is little accumulated in the organism. The accumulation rate in rat feed during 6 months with 1/10 LD ₅₀ is 11,7.					
✓ It has no influence in the nutritional chain, because plants do not grow nor reproduce while MIT is not totally eliminated, due to its high phytotoxicity.					
Persistence / Degradability					
✓ In contact with soil, water or oxygen, it is quickly and totally degraded in 1 or 2 days, reducing to Methyl Isothiocyanate (MIT), that is evaporated and completely eliminated one month after its application.					
✓ The product is considered as easily biodegradable.					
Other information:	Theoretical COD:	No data available.	Theoretical TOC:	No data available.	

* Data estimated from the active matter (Metam-Sodium)

13.- DISPOSAL CONSIDERATIONS

Disposal of the product:	No residues will remain due to the use of the product if the empty packaging is washed 3 times with water, adding this water to the solution.
Disposal of used containers:	The package, washed as above mentioned, may be disposed according to the local legislation, in a no contaminant place.
Provisions on waste disposal:	According to all the local and national legislation about the elimination of residues.

14.- TRANSPORT INFORMATION

Labelling for transport:	8 + environmentally hazardous substance
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ADR:	Proper Shipping Name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Metam-Sodium in mixture)						
	UN #:	3267	Classification Code:	C7	Transport Categ. (Tunnel restriction code):	3 (E)		
	Class:	8	Packing group:	III	Hazard No.:	80	Secondary Risk:	Environmentally hazardous substance
RID:	Proper Shipping Name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Metam-Sodium in mixture)						
IMDG:	Proper Shipping Name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Metam-Sodium in mixture)						
	Nº FEm:	F-A / S-B	Secondary Risk:	Marine Pollutant				
IATA:	Proper Shipping Name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Metam-Sodium in mixture)						
Special precautions:	Do not load foods along with. Avoid high temperatures. Verify that the packing is in good state and that the labels are not damaged before the distribution.							

15.- REGULATORY INFORMATION

Hazardous product symbol:	C, N
Toxicity	Toxicology classification (RD 255/2003): Corrosive. Carcinogenic Cat.3. Toxic for reproduction Cat.3. Hazardous for environment.
Environmental risks reduction:	To protect aquatic organisms, respect an unsprayed buffer zone of 5 mt. distance to water courses. To avoid the treatment affect adjacent lands, respect an unsprayed buffer zone of 5 mt. distance to these lands.
R-phrases:	R20/22: Harmful by inhalation and if swallowed. R31: Contact with acids liberates toxic gas. R34: Causes burns. R40: Limited evidence of a carcinogenic effect. R43: May cause sensitization by skin contact. R48/22: Harmful: danger of serious damage to health by prolonged exposure if swallowed. R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R63: Possible risk of harm to the unborn child.
S-phrases:	S1/2: Keep locked up and out of reach of the children. S13: Keep away from food, drink and animal feedingstuffs. S23: Do not breathe vapours. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28: After contact with skin, wash immediately with plenty of water and soap. S36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S38: In case of insufficient ventilation, wear suitable respiratory equipment. S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Special S-phrases:	SP1: Do not contaminate the water with the product nor with its package (Do not clean the application equipment of the product near superficial waters. Avoid the contamination through the systems of water evacuation of the operations or the ways).
Other information:	--

16.- OTHER INFORMATION

Consulted data bases:
<ul style="list-style-type: none">✓ Agro-Research. Agrochemical Directory and Hazard Response Handbook. Agro-Research enterprise Ltd.✓ RTECS (Registry of Toxic Effects of Chemical Substances). U.S. Department of Health and Human Services (1981-82).✓ ESIS. European chemical Substances Information System.✓ Institute of Security and Hygiene in the Work (INSHT).✓ The Pesticide Manual, Fourteenth Edition (2006). Editor: C D S Tomlin.✓ Farmacología vegetal, Carlos De Liñan y Vicente. 3ª Edición. Ediciones Agrotécnicas, S.L.✓ Manual Toxicológico de Productos Fitosanitarios para Uso Sanitario.

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Other R and S-phrases:

R22: Harmful if swallowed.

Glossary:**CAS:** Chemical Abstract Service.**EINECS:** European Inventory of Existing Chemical Substances.**VLA-ED:** Occupational Limit Value - Daily Exposure. Maximum concentration to which it is believed, that the majority of workers may be exposed 8 hours a day, 40 hours a week throughout their working life, without suffering adverse effects on their health.**VLA-EC:** Occupational Limit Value - Short Time Exposure. Maximum concentration of the chemical agent in the worker's breathing zone, measured or calculated for any 15-minute period throughout the working day, except for those chemical agents for which a lower reference period is specified in the list of Limit Values.**DNP:** Does not Proceed. **NC:** Not classified.**VLB:** Biological limit value for professional exposure.**BI:** Biological Indicator.**LD₅₀:** Average Lethal Dose.**ADI:** Acceptable Daily Intakes.**NOEL:** No Observed Effect Level**LC₅₀:** Average Lethal Concentration.**EC₅₀:** Average Effective Concentration.**ErC₅₀:** EC₅₀ (growth rate)**COD:** Chemical oxygen demand.**TOC:** Total organic carbon.**ADR:** European Agreement concerning the International Carriage of Dangerous Goods by Road.**RID:** European Agreement concerning the transport of dangerous goods by rail.**IMDG:** International Maritime Dangerous Goods Code.**Nº FEm:** Emergency Card Number.**IATA:** International Air Transport Association.**RD 255/2003:** Real Decree 255/2003, of 28th of February of 2003, by that the Regulation is approved on classification, packaging and labelling of dangerous preparations. BOE no. 54, of 4th of March.**CLP:** Classification, labelling and packaging of substances and mixtures (Regulation (EC) No 1272/2008).**Changes:**

Changes in product classification, specific conditions when handling and toxicological information.

The data and information of the present document are based on our current knowledge and other existing sources, according to the current regulations about classification, packing and labelling of dangerous products. Due to the fact that during manipulation a lot of factors are out of our control, **LAINCO, S.A.** is not responsible that the information is enough or correct in its application in all cases.