



# MATERIAL SAFETY DATA SHEET

Issue Date: 1 August 2011

Issued by: NUFARM MALAYSIA SDN BHD

Product Name:	<b>Metsulfuron-methyl 20% WG</b>
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## 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY:

<b>Product Name</b>	<b>Metsulfuron-methyl 20% WG</b>
<b>Company Name</b>	NUFARM MALAYSIA SDN BHD (207731-P)
<b>Company Address</b>	L2.03 Wisma BU8, No. 11, Lebuhr Bandar Utama, Bandar Utama, 47800, Petaling Jaya, Selangor D.E., Malaysia.
<b>Tel/Fax Number</b>	Tel: (+60 3) 7629 7233 Fax: (+60 3) 7629 7229
<b>Email</b>	<a href="mailto:sales.my@my.nufarm.com">sales.my@my.nufarm.com</a>
<b>Emergency Contact</b>	National Poison Centre 1800 88 8099 (Normal Hour) (+60 12) 430 9499 (After Hour)
<b>Product Type</b>	Herbicide
<b>Product Use</b>	A selective systemic herbicide used to control grasses and broad-leaved weeds in paddy, mature & in mature oil palm and rubber.
<b>Other Information</b>	This MSDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

## 2. HAZARDS IDENTIFICATION:

<b><u>Emergency Overview:</u></b>	
<b>Appearance and Odour</b>	Off-white to tan granules with slight odour.
<b>Warning Statements</b>	CAUTION. Keep out of reach of children. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid breathing dust or spray mist. Avoid contact with eyes, skin and clothing
<b><u>Potential Health Effects:</u></b>	
<b>Ingestion</b>	Slightly toxic based on toxicity studies.
<b>Eye Contact</b>	Eye contact with this material may cause eye irritation with tearing, pain or blurred vision.
<b>Skin Contact</b>	Repeated dermal contact with the active ingredient may cause skin irritation with itching, burning, redness, swelling or rash.
<b>Inhalation</b>	Low inhalation toxicity.
<b><u>Potential Environment Effect:</u></b>	Practically non-toxic to fish, birds and bees.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS:

<b>Type of Formulation</b>	Water Dispersible Granule (WG)		
<b>Ingredients</b>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
	A.I.: Metsulfuron-methyl	74223-64-6	20.0%, w/w
	Inert Ingredients		80.0%, w/w

## 4. FIRST AID MEASURES:

<b>Ingestion</b>	Contact the doctor or National Poison Centre immediately. Have the person sip water if able to swallow. Do NOT induce vomiting unless told to do so by doctor or National Poison Centre. Make every effort to prevent vomit from entering the lungs by careful placement of the patient.
<b>Eye</b>	Hold eyelids open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call National Poison Centre or doctor for treatment advice.



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<b>Skin</b>	Remove contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Wash affected area with soap and water. Call National Poison Centre or doctor for treatment advice.
<b>Inhalation</b>	Remove affected person to fresh air until recovered. If the person is not breathing, call 999 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call National Poison Centre or doctor for further treatment advice.

## 5. FIRE FIGHTING MEASURES:

<b>Extinguishing Media</b>	Water spray, Dry powder, sand, foam, carbon dioxide (CO <sub>2</sub> ). Avoid using high volume water jet.
<b>Special Fire Fighting Procedures</b>	Use personal protective equipment. Wear self contained breathing apparatus for fire-fighting if necessary.
<b>Specific Hazards during Fire</b>	In the event of fire, (NO <sub>x</sub> , CO <sub>x</sub> , SO <sub>2</sub> ) may be formed.
<b>Further Information</b>	Standard procedure for chemical fires. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

## 6. ACCIDENTAL RELEASE MEASURES:

<b>Spills and Disposal</b>	Recover the product by sweeping up or vacuuming without raising dust. Collect spilled material and waste in sealable open-top type containers for disposal.
<b>Environmental Precaution</b>	Prevent material from entering public sewer systems or any waterways.

## 7. HANDLING AND STORAGE:

<b>Handling</b>	Avoid generating or breathing dusts while handling the product and mixing. Do not use product container for any other purpose. Wash out the container and dispose of it in an approved manner.
<b>Storage</b>	For personal protective equipment (PPE) and hygiene advice, refer Section 8. Store in the closed, original container in a dry, well ventilated area out of direct sunlight. Store in a safe place away from foodstuffs, seeds or fertilizers. Store out of the reach of children. Do not contaminate water, food, or feed by storage or disposal.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

<b>Engineering Controls</b>	Handle in well ventilated area, generally natural ventilation is adequate.
<b>Personal Protective Equipment</b>	
<b>Eye/ Face Protection</b>	To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.
<b>Skin Protection</b>	To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical resistant gloves. An emergency shower or water supply should be readily accessible to the work area.
<b>Respiratory Protection</b>	Not normally required. If vapours or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.
<b>General Hygiene Considerations</b>	Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES:

<b>Physical State</b>	Solid
<b>Appearance</b>	Off-white to tan granules
<b>Odour</b>	Slight odour
<b>Bulk Density</b>	0.6 – 0.9 g/ml
<b>Solubility in Water</b>	Dispersible
<b>Vapour Pressure</b>	$3.3 \times 10^{-7}$ mPa (25°C, metsulfuron-methyl)
<b>Octanol/Water Partition Coefficient</b>	$K_{ow}$ Log P is 0.0018 (pH 7, 25°C for metsulfuron-methyl)
<b>Flammability</b>	Non combustible material.
<b>Other Information</b>	pKa is 3.8 (20°C, metsulfuron-methyl)

## 10. STABILITY AND REACTIVITY:

<b>Stability</b>	Stable under normal handling and storage conditions.
<b>Incompatibility with other materials</b>	None reasonable foreseeable
<b>Hazardous</b>	No decomposition if stored and applied as directed.
<b>Decomposition Product</b>	
<b>Hazardous Polymerization</b>	Hazardous Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION:

<b>Toxicology Information</b>	No harmful effects are expected if the precautions on the label and this MSDS are followed.
<b>Acute Toxicity - Oral</b>	LD <sub>50</sub> (rat): > 1667 mg/kg
<b>Acute Toxicity - Dermal</b>	LD <sub>50</sub> (rabbit): > 667 mg/kg
<b>Eye Irritation</b>	Not a skin irritant (rabbit).
<b>Skin Irritation</b>	Slight eye irritant (rabbit).
<b>Skin Sensitization</b>	Not a sensitizer (guinea pig).
<b>Chronic Effects</b>	Base on available data, repeated exposures are not anticipated to cause additional significant adverse effects.
<b>Reproductive Toxicity</b>	Animal tests with metsulfuron-methyl have not demonstrated reproductive effects.
<b>Developmental Toxicity</b>	Animal tests with metsulfuron-methyl have not demonstrated developmental effects.
<b>Genotoxicity</b>	There have been some positive and negative studies, but the weight of evidence is that metsulfuron-methyl is not mutagenic.

## 12. ECOLOGICAL INFORMATION:

<b>Acute Toxicity - Fish</b>	The following data is for the active ingredient, metsulfuron-methyl: LC <sub>50</sub> (96hr) Bluegill Sunfish: > 150 mg/L LC <sub>50</sub> (96hr) Rainbow Trout: > 150 mg/L
<b>Acute Toxicity - Daphnia</b>	EC <sub>50</sub> (48 hr) Daphnia: > 120 mg/L
<b>Acute Toxicity - Algae</b>	EC <sub>50</sub> (72hr) Green Algae: > 0.157 mg/L
<b>Acute Toxicity - Other Organisms</b>	LC <sub>50</sub> (8 d) Bobwhite Quail: > 5620 mg/kg LD <sub>50</sub> (8 d) Mallard duck: > 2510 ppm Not toxic to bees. LD <sub>50</sub> (oral) Bee: > 44.3 µg/bee LD <sub>50</sub> (contact) Bee: > 50 µg/bee
<b>Environmental Fate</b>	Metsulfuron-methyl is relatively mobile in most soils, but will be retained longer in soils with higher percentages of organic matter. It is more mobile in alkaline soils than in acidic soils. Metsulfuron-methyl will degrade faster under acidic conditions, and in soils with higher moisture contents and higher temperature. Metsulfuron-methyl is stable to photolysis, but will break down in ultraviolet light. Half-life estimates in soil range from 14 to 180 days, with



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## Other Precautions

an average of 30 days. Metsulfuron-methyl is stable to hydrolysis at neutral and alkaline pHs. The estimated half-life in acidic water is 3 weeks.  
DO NOT contaminate dams, rivers or streams with this product or the containers which have held this product.

## 13. DISPOSAL CONSIDERATIONS:

<b>Product Disposal</b>	Ideally the product should be used for its intended purpose. If there's a need to dispose of the product, approach local authorities who hold periodic collection of unwanted chemical. On site disposal of the product is not acceptable.
<b>Container Disposal</b>	Do not use this container for any other purpose. Triple rinse containers, add rinsate to the spray tank, then offer for recycling / reconditioning or puncture top, sides and bottom and dispose of in landfill in accordance with local regulations. If no landfill is available, bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

## 14. TRANSPORT INFORMATION:

<b>Transport Information</b>	It is a good practice to separate this product from food, food related materials, animal feedstuffs, seed or fertilizers during transport.
<b>Storage and Transport UN Number (Sea Transport)</b>	Follow the precautions indicated in this MSDS, Section 7: HANDLING AND STORAGE. 3077
<b>IMO Class/Packing Group</b>	Class 9, Packing Group III
<b>IMO Marine Pollutant</b>	Marine Pollutant
<b>IMO Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (contains metsulfuron-methyl)

## 15. REGULATORY INFORMATION:

<b>Risk Phrase:</b>	N/A
<b>Safety Phrase:</b>	N/A
<b>Poisons Schedule</b>	No data
<b>Hazard Category</b>	Class IV (Malaysia Regulation)
<b>Packaging and Labeling</b>	KEEP AWAY FROM FOODSTUFF AND CHILDREN. READ THE LABEL BEFORE USE.

## 16. OTHER INFORMATION:

<b>Contact Person / Point</b>	Nufarm Malaysia Sdn Bhd Mr. PMG Pitchai Phone: (+60 3) 31761888 Ext 217 Position: Safety & Health Officer DOSH Reg No: JKKP IS 127/438/2/2294 Email: <a href="mailto:pmg.pitchai@my.nufarm.com">pmg.pitchai@my.nufarm.com</a>
<b>Revisions Highlighted</b>	First Issue.

...END OF MSDS ...

**Note:** While the information given herein is, to the best of our knowledge, correct and is given in good faith, we make no warranty, with respect hereto and disclaim all liability from reliance thereon. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose.