



AGRICULTURAL MINERALS
INDUSTRIAL MINERALS
pH MANAGEMENT & CONTROL
FINE MILLING & BLENDS

Pursuing our vision of "ENVIRONMENTAL TRANSFORMATION"

AGRICULTURAL MINERALS

- ◆ CALCIUM CARBONATE
- ◆ GYPSUM
- ◆ DOLOMITE
- ◆ LIQUID SUSPENSION BLENDS OF CALCIUM AND GYSUM
- ◆ CATTLE FEED SUPPLEMENTS

INDUSTRIAL & MINING MINERALS

- ◆ QUICKLIME
- ◆ HYDRATED LIME
- ◆ BARITE
- ◆ SODA ASH
- ◆ CIVIL STABILISERS

pH MANAGEMENT

Proud holders of Australian Patent for “Method and Apparatus for Acidic Surface Water Treatment”. MMS has developed an innovative in-situ acid mine water treatment process for decontamination of acidic water containing high levels of dissolved (bioavailable) metals stored on active and legacy mine sites.

FINE MILLING & BLENDS

Specialised manufacturing equipment, Twin Vertical Roller Mills with annual capacity of >100,000 tonne production. Infinitely managed by turbine classification for careful particle size management for exacting product sizes ranging from 5 to 250 micron. MMS ensures production of high quality fine ground minerals with the added capacity to accurately blend speciality products to suit customer requirements.



MICRONISED MINERALS (MMS) a mineral earths company focused on offering high-quality mineral products and whole of service in innovative ways. Established in Darwin in 2007 to service the mining, oil & gas, civil & agricultural sectors throughout Northern Australia, MMS are minerals specialists for the manufacture & supply of industrial and agricultural minerals

Modern purpose-built facility located in East Arm with close access to the Darwin Port facility and Rail terminal. With multiple road train access, road tankers, ISO & purpose-built tipping containers we are well equipped to fulfil customer delivery requirements

Key supplier of high-quality agricultural minerals to the tropical fruit & vegetable growers and broad acre farms in Northern Territory. MMS agriculture minerals are specially processed and formulated to maximise the Effective Neutralisation Value (ENV) creating a balancing agent for low pH soils. MMS Calci Flour is 5 times more available to plants than typical Aglime product.

- MMS Calci Flour (fine ground calcium carbonate)
- MMS Gyp Flour (high-quality calcium sulphate/gypsum)
- MMS Dolomite
- MMS Hydro Cal-B and MMS Hydro Gyp-B (liquid suspensions)



AGRICULTURAL MINERALS



MMS CALCI FLOUR

High quality fine ground Calcium Carbonate NV>99%

MMS GYP FLOUR

High quality fine ground Gypsum

MMS HYDRO CAL-B

High quality Calcium Liquid Suspension with Boron, Nitrogen & Phosphorous

MMS HYDRO GYP-B

High quality Gypsum Liquid Suspension with Boron, Nitrogen and Phosphorous

MMS DOLOMITE

High quality fine ground Calcium Magnesium Carbonate

MMS HYDRATED LIME

High quality fine ground Calcium Hydroxide

MMS CALCI FLOUR

(Calcium Carbonate with NV>99%)



MMS CALCI FLOUR is a high quality Calcium Carbonate product ground to mean average particle size of 18 microns. It is specially formulated to maximise the ENV (Effective Neutralisation Value) creating a balancing agent for low pH soils.

Calcium is the “King of Minerals” that releases the strongest growth energy for plants, which also carries many other nutrients and micro-nutrients into the plant during uptake. Calcium is vital for strong plant cell structure, fruit quality and disease resistance at optimum levels. MMS Calci Flour is the perfect product for all fruit and vegetables, high quality hay and healthy livestock.

Key Product Features and Benefits

- ☆ Locally manufactured lime specially formulated to allow five times more Calcium uptake by plants than Ag Lime
- ☆ Opens soil structure, with improved aeration and water infiltration that increases soil microbial populations & diversity.
- ☆ Calcium is an essential mineral required for new cell formation in plants as well as reproduction and growth of soil micro-organisms and fungi.
- ☆ Increased plant available nutrients promoted through higher product availability.
- ☆ **MMS Calci Flour** is a micronised dry product which requires lower application rates for effective soil cover compared to conventional limestone products. Typically, our micron size requires ~11 kg for a surface area coverage of one hectare
- ☆ Promotes extensive root growth for deeper moisture and nutrient uptake by the plants.
- ☆ **MMS Calci Flour** is a smart product selection to raise pH levels in tropical acid soils

☑ Packaging options: Bulker Bags 500 /1000 /1200 kgs

Physical Properties	Typical	Range
Grain Size (<100 µm)	>95% passing	90-100%
Surface Area	930 m ²	900-1000 m ²
Bulk Density	1100 kg/m ³	1050-1200 kg/m ³

PROPERTIES	TYPICAL	RANGE
CaO Available	52%	50 - 52%
CaCO ₃	94.0%	94 - 98%
Effective Neutralisation Value	96.7%	95% Min
SiO ₂	1.0%	2.0% Max
Al ₂ O ₃	1.0%	1.0% Max
Fe ₂ O ₃	0.1%	0.1% Max
MgCO ₃	0.5%	2.0% Max
pH in slurry	7	6.8 - 7.5

PRODUCT HANDLING & STORAGE

MMS Calci Flour is classified as a fine grain material suited to pneumatic & mechanical conveying systems. Store in a cool, dry, well ventilated area, removed from incompatible substances & foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

PRODUCT SAFETY INFORMATION

Personnel should wear dust-proof goggles, PVC or rubber gloves and impervious shoes. While using in large quantities, use coveralls. Where an inhalation risk exists, wear a Class P1 (particulate) respirator. For more information, refer to Safety Data Sheet for Calcium Carbonate.

MMS GYP FLOUR

(Finely ground Gypsum product)



Physical Properties	Typical	Range
Grain Size (<100 µm)	>95% passing	90-100%
Surface Area	930 m ²	900-1000 m ²
Bulk Density	1100 kg/m ³	1000-1100 kg/m ³

PROPERTIES	TYPICAL
Free Moisture Content	0.07%
Purity	95%
Total Calcium as Ca (W/V%)	24%
Total Sulphur as S (W/V%)	12%
Solubility	2.27%
Kg/Ha Coverage @ 20-100 microns	11

PRODUCT HANDLING & STORAGE

MMS Gyp Flour is classified as a fine grain material not considered toxic unless large amounts are ingested. Store in a cool, dry, well ventilated area, out of direct sunlight. Keep away from extreme heat and flames; store away from mineral acids and alkaline solutions. Keep containers tightly closed when product not in use.

PRODUCT SAFETY INFORMATION

Personnel should wear dust-proof goggles, leather or neoprene rubber gloves; long-sleeved protective clothing and safety footwear. While using in large quantities, use coveralls. Where an inhalation risk exists, use dust-mask or half-faced respirator fitted with a P2 filter. For more information, refer to Safety Data Sheet for Gypsum.

MMS GYP FLOUR is a high quality ground Gypsum product ground to mean average particle size of 18 microns.

It is specially formulated to rapidly release excess magnesium in moderate to heavy clay soils to improve its porosity. It creates an open structure, reducing compaction issues with a higher Ca:Mg ratio essential for high production cropping.

MMS GYP FLOUR is preferred Calcium source for high pH soils, as well as reducing excess sodium (salt) levels in soils.

Key Product Features and Benefits

- ☆ Locally manufactured in the NT, with superior levels of soluble Calcium and Sulphur compared with alternative imported products.
- ☆ Greatly improves nitrogen soil and plant uptake efficiencies resulting in lower application rates for the same crop requirements, thereby reducing production costs.
- ☆ Essential source of sulphur, for higher protein levels in pastures as well as higher plant / soil vitality.
- ☆ Addition of Boron for effective Calcium uptake for palatable, mineral-dense pastures with higher pest and disease resistance in cropping, fruit and vegetables.
- ☆ Increased beneficial soil microorganism populations and diversity due to improved soil structure and plant available minerals.
- ☆ Application rates > 500 kg / ha can induce a fruiting / seed production response. Multiple applications of lower rates are recommended for more effective soil conditioning.
- ☆ Higher growth rates of forage / herbage production can be achieved with a combination of MMS Gyp Flour and MMS Calci Four

☑ Packaging options: Bulker Bags 500 / 1000 / 1200 kgs



MMS HYDRO GYP

(Gypsum Liquid Suspension)

PROPERTIES	TYPICAL
Total Calcium W/V%	43%
Total Sulphur W/V%	16%
Total Boron W/V%	1.2%
Total Magnesium	0.6%
Available Calcium W/V%	30.5
Available Sulphur W/V%	4%
Available Boron W/V%	0.7%
pH in slurry	6.5

PRODUCT HANDLING & STORAGE

MMS Hydro Gyp-B is not considered toxic unless large amounts are ingested. Store in a cool, dry, well ventilated area, out of direct sunlight. Keep away from extreme heat and flames; store away from mineral acids and alkaline solutions. Keep containers tightly closed when product not in use.

PRODUCT SAFETY INFORMATION

Personnel should wear dust-proof goggles, leather or neoprene rubber gloves; long-sleeved protective clothing and safety footwear. While using in large quantities, use coveralls. Where an inhalation risk exists, use dust-mask or half-faced respirator fitted with a P2 filter. For more information, refer to Safety Data Sheet for Gypsum.



MMS HYDRO GYP - B is a high quality, micronised Gypsum liquid suspension with a milled grain size. It is specially formulated to rapidly release excess magnesium in moderate to heavy clay soils to improve its porosity, creating an open structure, reducing compaction issues with a higher Ca:Mg ratio, which is essential for high production cropping.

MMS HYDRO GYP - B is preferred Calcium source for high pH soils, as well as reducing excess sodium (salt) levels in soils.

KEY PRODUCT FEATURES

- ☆ Locally manufactured in the NT, with superior levels of soluble Calcium, Sulphur and Boron compared with alternative imported products.
- ☆ Greatly improves nitrogen soil and plant uptake efficiencies resulting in lower application rates for the same crop requirements, thereby reducing production costs.
- ☆ Essential source of sulphur, for higher protein levels in pastures as well as higher plant / soil vitality.
- ☆ Addition of Boron for effective Calcium uptake for palatable, mineral-dense pastures with higher pest and disease resistance in cropping, fruit and vegetables.
- ☆ Increased beneficial soil microorganism populations and diversity due to improved soil structure and plant available minerals.
- ☆ Can be applied as Foliar and Fertigation for greater production efficiency and nutrient availability.
- ☆ Our manufacturing process and suspension agents allow for rapid reconstitution of the micronised suspension, if settling occurs during transport or longer-term storage.

☒ Packaging options: 1000 litre IBC (Intermediate Bulk Containers)



MMS DOLOMITE

(Calcium Magnesium Carbonate)



Physical Properties	Typical	Range
Grain Size (<100 mm)	>50% passing	18 - 25 %
Neutralisation Value	>90%	90 - 95%

PROPERTIES	TYPICAL	RANGE
CaCO ₃ / MgO	94%	90 - 96%
CaO	36.3%	32 - 36.3%
K ₂ O	0.71%	
MgO	15%	12 - 16.5%
P ₂ O ₅	0.18%	
SiO ₂	<3%	3 - 5%

PRODUCT HANDLING & STORAGE

MMS Dolomite is classified as fine grain material and is suited to pneumatic and mechanical conveying systems. Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect from direct sunlight and moisture. Store in original packaging as approved by the manufacturer, preferably metal can or plastic pail. Do not inhale product dust or fumes.

PRODUCT SAFETY INFORMATION

Personnel should wear protective clothing, effective dust-mask, safety glasses with side shields, PVC gloves, long-sleeved protective clothing and safety footwear. For full information, refer to the Safety Data Sheet for Dolomite.

Dolomite has been recognised for centuries as the most valuable fertiliser tool available to farmers, graziers and gardeners. It contains trace elements essential for soil balance, countering toxic effects, triggering germination and providing enzymes vital to all growth and life processes.

MMS Dolomite is a high quality, Calcium Magnesium Carbonate product manufactured to a fine grain size, ideally suited for aerial spraying and provides a rapid uptake for crops, fruits and pasture. It provides Carbon Dioxide, vital for synthesis of starches, sugars and carbohydrates and prevents loss of Copper, Zinc, Manganese, Phosphorus and other trace elements from acid or saline soils.

Key Product Features and Benefits

- ☆ Allows improved water penetration for acidic soils, provides trace elements for magnesium deficient soils.
- ☆ Improves the uptake of major trace elements Nitrogen, Phosphorus and Potassium for plants growing in acid soils.
- ☆ Improves soil efficiency and crop yields
- ☆ Improved pastures; ideal for cattle feed where magnesium mineral supplement is required.

- ☑ Grind sizes available to customer requirements.
- ☑ Supplied with packaging options: Bulk tankers and Bulker Bags



MMS HYDRATED LIME



Physical Properties	Typical	Range
Bulk Density	450 kg/m ³	400-600 kg/m ³
Moisture Content	0.1%	1% MAX

PROPERTIES	TYPICAL	RANGE
CaO Available	70.0%	68 - 72%
SiO ₂	0.07%	1.0% Max
Al ₂ O ₃	0.20%	0.5% Max
Fe ₂ O ₃	0.1%	0.2% Max
MgO	1.0%	1.5% Max
pH in slurry	12.4	12 Min

PRODUCT HANDLING & STORAGE

MMS Hydrated Lime is classified as a fine grain material suited to pneumatic and mechanical conveying systems. Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure packages are adequately labelled, protected from physical damage, and sealed when not in use. Protect from moisture. Avoid inhalation and ensure to use the product in well ventilated areas.

PRODUCT SAFETY INFORMATION

Personnel should wear protective clothing, dust-proof goggles, preferably face-shield, PVC or rubber gloves and impervious boots. While using in large quantities, wear coveralls. For full information, refer to the Safety Data Sheet for Hydrated Lime.

Calcium Hydroxide [Ca(OH)₂], also known as Hydrated Lime, is a fine, odourless white powder commercially produced by reacting Quicklime with sufficient water. It is used in many applications, including food preparation, water treatment, soil stabilisation and can be added to water to produce *Milk of Lime*.

MMS Hydrated Lime (slaked lime), is a high quality calcium hydroxide product manufactured to a fine grain size which maximises the availability of [Ca(OH)₂] for chemical processes.

Hydrated Lime is used for potable water, softening pH and removal of heavy metals and impurities from drinking water. Hydrated lime is a highly cost effective method for treating sewage sludge and animal waste from concentrated animal feeding operations.

Key Product Features and Benefits

- ☆ Used as a binder in livestock feed products
- ☆ Used as a source of Calcium supplement in animal feed products
- ☆ Acid Water Treatment
- ☆ Potable Water Softening
- ☆ Soil Stabilisation / Road construction
- ☆ Acid Sulphate Soil Treatment

- ☑ Grind sizes available to customer requirements.
- ☑ Supplied with packaging options: 25 kg sacks and Bulker Bags

AGRI-PROJECTS

Project: Adelaide River Grazing Co.
Pty Ltd.

Project Type: Soil Conditioning

Testimonial: "Best Crop Ever"

OUR CUSTOMERS

MMS has reputed customers sourcing our agri-products, to name a few:-

- ♦ LANDMARK
- ♦ E. E. MUIRS
- ♦ TERRITORY RURAL
- ♦ NATIONAL FEED COMPANY
- ♦ KING PRODUCERS
- ♦ PANDANUS FRMS

MICRONISED MINERALS

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