Technical Information

August 2017
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Last change WF-No. 11639

Librel® Mn

® = Registered trademark of BASF in many countries.

A micronutrient fertilizer used to correct manganese deficiency in crops and as a micronutrient source in growing media.

BASF
We create chemistry

Product type

Micronutrient fertiliser conforming to the definition of an “EC FERTILISER”.

Chemical name

Manganese ethylenediamine tetraacetate disodium salt (MnEDTA Na_2).

PRD-No.

30482179

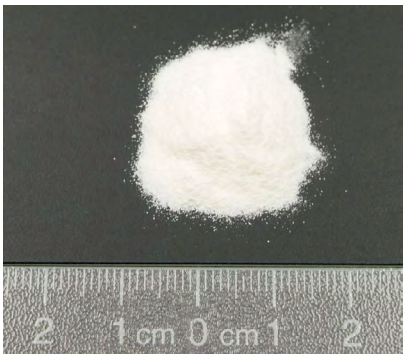
* BASF’s commercial product numbers.

Intended use

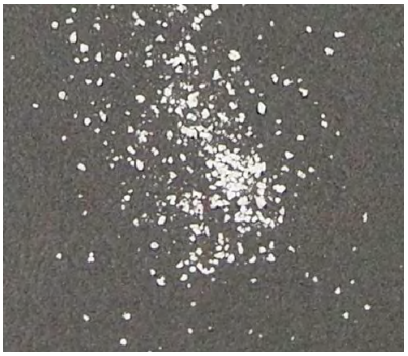
- To correct manganese deficiency in most agricultural, horticultural and ornamental crops. Recommended for foliar application.
- As a micronutrient source in hydroponics, liquid feed solutions and soilless growing media.

Appearance

Librel® Mn is a white spray agglomerated microgranule.



Original Size



Enlarged Image

Handling and storage

Handling

a) Librel® Mn should be stored indoors in a dry place.

b) Care must be taken to exclude moisture. Drums/bags/boxes must be tightly resealed each time they are opened.

c) Big bags are not to be stacked during storage in order to prevent lumping/ agglomeration due to weight compression.

d) Please refer to the latest Safety Data Sheet for detailed information on product safety.

Materials

Containers made of the following materials are appropriate for the storage of Librel® Mn:
a) High density polyethylene (HDPE)
b) Low density polyethylene (LDPE).
c) Polypropylene (PP)

Shelf life

Librel® Mn has a shelf life of at least four years in its original packaging, provided it is stored correctly and drums/bags are kept tightly sealed.

Transport precautions

No special precautions are necessary for transport by air, sea, rail or road.

Harmonised tariff no.

2922 49 85 90

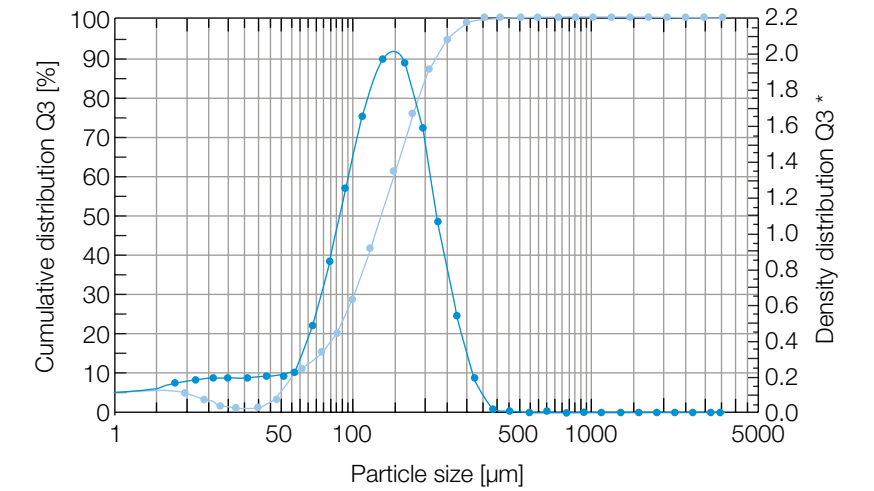
Properties

Some physical properties are listed in the table below. These are typical values only and not all of them are monitored on a regular basis. They are correct at the time of publication and do not necessarily form part of the product specification. A detailed product specification is available on request or via BASF's WorldAccount: https://worldaccount.basf.com (registered access).

Librel® Mn	Unit	Value
Physical form (20 °C)		microgranule
Mn (as water soluble Mn) (BASF method 6618, ICP-OES)	%	approx. 13.0
Dry weight (BASF method 6401, 110 °C)	%	approx. 95
Bulk density (BASF method 6404)	g/l	approx. 650
Solubility (BASF method 6431 in water @ 20 °C)	g/l	approx. 450
pH value (BASF method 6402, 2% in water)		approx. 7

Particle size distribution

The following graph shows the particle size distribution curve for Librel® Mn using Sympatec Helos H1594 Gradis System with an R7 lens:



X10 µm	X50 µm	VMD µm	X 90 µm	X 100 µm	Peak µm
53	129	131	211	360	143

Directions for use

General information

Librel® Mn gives best results when crops have adequate supplies of water and major nutrients and are not under stress for any other reason. Conditions that are responsible for one particular deficiency can also induce deficiencies of other micronutrients. Always ensure that deficiencies are confirmed before treatment is carried out.

Mixing with water

Simply add the powder to water while it is being agitated, do not pre-mix. Continue agitation for a short while to ensure complete dissolution.

Compatibility

Librel® Mn is compatible with all other Librel® chelates and many crop care chemicals. It is also fully compatible with solutions containing soluble phosphates such as liquid feeds and foliar fertilisers.

Foliar application

General information

Librel® Mn should be dissolved in a convenient volume of water to suit the spraying machine being used and the target crop leaf area. The following points should be observed.

1. The sprayer should be fitted with nozzles that produce a fine mist.
2. Only sufficient spray solution should be applied to coat the leaves and stems with a film of moisture with little or no “run off”.
3. Spraying should be carried out on a calm day **but not during strong sunshine or high temperatures.** The best time is late afternoon or evening.
4. If rain is imminent, spraying should be postponed. If rain falls within 4 hours of spraying, the crop should be re-sprayed 3 or 4 days later.

Fruit crops

Do not exceed a solution of 0.1% (1 g/L) for any one or combination of Librel® chelates. Some fruit varieties and cultivars can exhibit unpredictable sensitivity to EDTA chelates. Where local experience of successful use is not available, we strongly recommend small-scale test applications before wide spread use.

Rates of use and timing

Librel® Mn may be applied in one application of 2.0 kilograms per hectare but optimum results can be expected if repeat applications are used. In general foliar applications should be started early in the season as soon as there is sufficient leaf area to absorb the spray.

Crop	Rates of use (kg/ha)	Timing
Winter cereals	1.0	Apply when spring regrowth commences. For severe deficiency an additional full rate application soon after tillering (ZCK 23).
Spring cereals	1.0	Apply as soon as there is sufficient leaf area to absorb the spray.
Sugar beet	0.5	With repeat dose herbicide programms apply with each application.
	1.0	Conventional application as soon as there is sufficient leaf area to absorb the spray.
Potatoes	1.0	At tuber initiation or before the tops meet the rows.
	0.5	Applied with each routine blight spray.
	1.0	Apply just before or at flowering, and repeat if necessary 10 – 14 days later.
Top and soft fruit	0.5	Begin application in early spring and repeat as necessary throughout the season.
Pasture	1.0	Apply in early spring, the treatment should be repeated annually.

Water volume

The amount of Librel® Mn to be applied should be mixed with a volume of water appropriate to the crop leaf area of the type of spraying machine being used.

Arable crops:	200 – 600 liters per hectare.
Fruit crops:	500 – 1000 liters per hectare.
NB:	Do not exceed a solution concentration of 0.1% (1 g/L).

Wetting agent

Unless Librel® Mn is to be applied with a pesticide containing sufficient wetter, then a standard, agricultural non-ionic wetting agent should be used as recommended by the manufacturer.

Small scale use

For example using a Knapsack sprayer. Prepare a 0.05 – 0.1% (0.5 – 1.0 g/L) solution and apply so as to coat the leaves and stems with a thin film of moisture with little or no run-off.

Soil application

Please contact your supplier for appropriate recommendations.

Hydroponic application

Rates of use

1 ppm (18.18 µmol/l) manganese can be achieved by adding 7.7 grams of Librel® Mn per 1000 liters of solution.

Statutory caution

To be used only where there is a recognised need. Do not exceed the appropriate dose rate.

Safety

Detailed information on the product described in this leaflet can be found in our relevant Health and Safety Information (Material Safety Data Sheet) available via BASF's WorldAccount: https://worldaccount.basf.com (registered access).

We are not aware of any ill effect that can result from using Librel® Mn for the purpose for which it is intended and from processing it in accordance with current practices.

According to the experience that we have gained over many years and other information at our disposal, Librel® Mn does not exert harmful effects on health, provided it is used properly, due attention is given to the precautions necessary for handling chemicals, and the information and advice given in our Safety Data Sheets are observed.

Labelling

Please consult the current Safety Data Sheets for information on the classification and labelling of our products and other information relevant to safety.

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