

INDUSTRIALS DIVISION 2017

YOUR NEEDS,
OUR KNOW-HOW,
YOUR PRODUCTS



 **Valagro**[®]

Where science serves nature

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WHERE
SCIENCE
SERVES
NATURE





COMPANY PROFILE

VISION

Meet humanity's needs by using fewer resources, thanks to a new Con-science able to put science at the service of man through innovation and respect for nature.

MISSION

We have always created with passion innovative and effective solutions for the nutrition and care of plants, respecting both people and the environment.

VALUES

- Integrity and honesty.
- Passion for customers, products and work.
- Responsibility for ourselves, others and the environment.
- Cohesion and multiculturalism.
- Faith in innovation.

THE HISTORY

1980

1980 Valagro begins the production and the supplying of fertilizers in the Italian market.

80/89

1980-1989 Customer orientation and scientific research are success factors on the Market. In 1988 the first commercial subsidiary in Spain is set up.

1990s

1990s Valagro invests in vertical integration. Set up of new commercial subsidiaries and strategic acquisition in Greece, Mexico, Colombia, Brasil and USA.

2000s

2000s Valagro's products become famous all over the world and the Company begins its first diversification with the definition of different business units. The acquisition process continues with the Norwegian Algea and Nordtang, the English Maxicrop with its subsidiaries in Australia and New Zealand, and the French Samabiol.

2010

2010 Today Valagro works in more than 80 different countries, with quality certified by the most important international authorities and with a continuous attention to the Research. Valagro has four large business areas: Farm for agriculture, Garden for gardening, Turf & Ornamentals for grass lawns, and Industrials for raw materials and products useful for different industries.

WHERE SCIENCE SERVES NATURE



Valagro has always invested in research and development implementing Innovation to satisfy customer expectations and ensure the minimum environmental impact.

The best ideas turn into prototypes tested by Global R&D Department with careful experimentation to guarantee products efficacy. The prototypes are also valued by the Marketing Department that draws the future of the products.

The main rule of our research processes is to use Science to understand and make full use of Nature's potential while keeping a watchful eye on environmental sustainability in order to produce efficient solutions for our customers.

QUALITY IS NOT JUST A WORD

Quality in Valagro is a daily commitment that involves every single resource and affects every single process.

Over the years Valagro has applied a specific certification program along the route to complete customer satisfaction:

- adhesion to the **Fertiliser Quality Control Institute** (ICQF – Istituto Controllo Qualità Fertilizzanti), the organization that annually checks compliance of package contents with the quality requirements set out by Italian law no. 748/84
- **ISO 14001:2004**, environmental certification, this international standard certifies those management systems that keep the environmental impact of their activities under control, while trying to improve them in a coherent, efficient and sustainable way
- participation in **Responsible Care**, a voluntary program organized by the World Chemical Industry and based on the implementation of principles for the protection of the environment and worker's health and safety.
- **Quality System ISO 9001:2000** certification, which makes sure that every company's process is addressed to the organization's efficiency and efficacy improvement, as well as to customer satisfaction
- adhesion to the **GLOBALG.A.P. program**, which aims to ensure the integrity, transparency and harmonisation of agricultural standards worldwide
- **OHSAS 18001** certification, the international standard that establishes the management system features in order to ensure the workers' health and safety.



Responsible Care
L'impegno dell'industria chimica
per l'ambiente,
la sicurezza, la salute



INDUSTRIALS DIVISION

YOUR NEEDS, OUR KNOW HOW, YOUR PRODUCTS

The Industrial Division offers special products of the highest quality to the firms operating in the fertilizer field.

YOUR NEEDS

The Industrials Division can assist you in the creation of ad-hoc packaging for your products. It also evaluates every single need under strictly confidentiality.

OUR KNOW-HOW

Each product has a unique set of ingredients, properties, products process, characteristics. Every single technical detail is important to have the best products.

Our **Global R&D Department** researches continually new ingredients and formulations to have more effective products. It is able to offer a scientific advice thanks to updated methods of analysis.

Our **Regulatory Department** could assist you in word processing of labels with a technical support.

Our **Business Operation Department** uses the most advanced technologies to realize the final products.

Our **Marketing Department** together with the **Sales Department**, supports you during every production stage, from the selection of ingredients to the packaging.

YOUR PRODUCTS

You can choose among a large variety of formulations: liquid and solid **humic and fulvic acids**, **EDDHA** chelates with different percentages of Iron in ortho-orto position, **EDDHSa** chelates also rich in Potassium, a complete series of microelements chelated by **EDTA, LSA** complexed products.



OUR TECHNOLOGIES

OUR PLANT

Valagro products cutting-edge solutions for formulators. The Production plant produces various formulations, starting from the best raw materials and processing them with the latest technologies. For example, we selected *Ascophyllum nodosum* collected directly by our branch Algea only in Norway, due to the content of natural marine compound such as alginate, mannitol or betaines. Thanks to the deep know-how, Valagro produces high quality products, such as Humic Acids and a large variety of chelated and complexed Trace Elements. Products quality is guaranteed by the relationship between Valagro experience and the best technologies used to obtain innovative and efficacy solutions.

TAILOR-MADE PRODUCTS

With over than thirty years of experience, Valagro is close to Industrial customers with high quality ingredients and customization of formulations and packaging.

The Industrial Division supports its customers in product selection, regulatory support and in the packaging development process. Packaging can be customized according to the specific needs of the customer, in terms of size and graphic.

You can choose among different packaging:

SOLID	LIQUID
Kg 1	L 1
Kg 5	L 10
Kg 10	L 1000
Kg 500	



HUMIC ACIDS



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MULTIMEDIA CONTENT

HUMIC ACID

They are mixtures of many molecules based on a motif of aromatic nuclei with phenolic and carboxylic constituents formed by the microbial degradation of dead plant matter, such as lignin. Their structure of a given sample depends on the soil source and the specific conditions of extraction. Humic substances can be divided into three main fractions: humic acids, fulvic acids and humin.

CHARACTERISTICS

- are very resistant to further biodegradation;
- have an extensive miscibility;
- can be used in soil and foliar application
- detoxify the land from heavy metals;
- improve soil structure and fertility;
- have a chelating action;
- have a hormon-like activity on their roots;
- stimulate H⁺ ATPase Activity.

PRODUCTS

HUMIC ACIDS:

AU 15%

HUMIC 80

FULVIC 100



TRACE ELEMENTS

The trace elements are absorbed by plants through their root or leaves in small quantities (dozens or hundreds of grams per hectare). The chemical and physical form in which they are absorbed may be ionic or chelated. The main trace elements involved in different processes are:

TRACE ELEMENTS		ACTIVITIES
Fe	IRON	Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase)
Mn	MANGANESE	Chlorophyll production, Auxins metabolism, Enzymatic activation (Nitrogen metabolism, Krebs cycle), Protein, Lipid and carbohydrates synthesis
Zn	ZINC	Auxins synthesis, Enzyme activity in Protein, carbohydrates and ATP synthesis, Enzymatic activation, Nitrogen metabolism, membrane stability
Cu	COPPER	Chlorophyll stability, Enzyme activity in Protein and carbohydrates metabolism, Nitrogen fixation, Nitrate reduction
B	BORON	Sugars transfer, Pollen fertility, Cell wall stability
Mo	MOLYBDENUM	Chlorophyll synthesis, Nitrogen fixation, Protein synthesis

AVAILABILITY: pH CONDITIONS

Each trace element in ionic form needs a particular pH level to carry out its activities.

TRACE ELEMENTS	IDEAL pH
Fe IRON	3.0-6.5
Mn MANGANESE	3.0-6.5
Zn ZINC	3.5-7.0
Cu COPPER	5.0-7.5
B BORON	5.0-7.2
Mo MOLYBDENUM	6.5-9.0

AVAILABILITY: ANTAGONISMS

The activities of many trace elements could be seriously obstructed by the presence of other trace elements and macro elements in the soil.

TRACE ELEMENTS	ANTAGONISM
Fe IRON	PHOSPHORUS, ZINC, CALCIUM, COPPER
Mn MANGANESE	CALCIUM, COPPER
Zn ZINC	IRON, PHOSPHORUS
Cu COPPER	MANGANESE, IRON, MOLYBDENUM, PHOSPHORUS, NITROGEN
B BORON	POTASSIUM, NITROGEN, CALCIUM
Mo MOLYBDENUM	COPPER

AVAILABILITY: CLIMATIC FACTORS

Climatic factors can influence natural processes in which trace elements are involved. Different climatic factors could have a different impact on the activity of each trace element.

TRACE ELEMENTS		COLD	ROOT ASPHYXIA	DROUGHT	HIGH LUMINOSITY	POOR VENTILATION
Fe	IRON	X	X		0	X
Mn	MANGANESE	X	X	X		
Zn	ZINC	X	X			
Cu	COPPER					
B	BORON					
Mo	MOLYBDENUM			X		

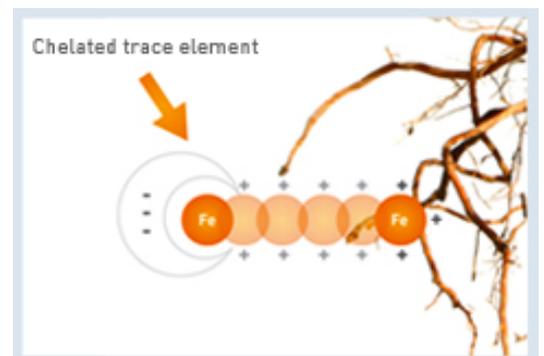
X: negative correlation
0: positive correlation

CHELATED TRACE ELEMENTS

Chelated trace elements are more effective because the chelating molecules protect trace elements from insolubility and are also recognized by plant enzymes (that collect and transport micronutrients into tissues). There are different chelating agents different in PH range stability and in light sensibility.

TRACE ELEMENT	CHELATING AGENT	pH RANGE STABILITY
Fe	EDTA	1.0 - 6.5
Fe	EDDHA	4.0 - 10.0
Fe	EDDHSA	0.0 - 12.0

Here an example of pH stability ranges of Iron (Fe) chelated with different chelating agents



Trace element uptake



CHELATING AGENTS: EDDHA & EDDHSA



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MULTIMEDIA CONTENT

EDDHSA

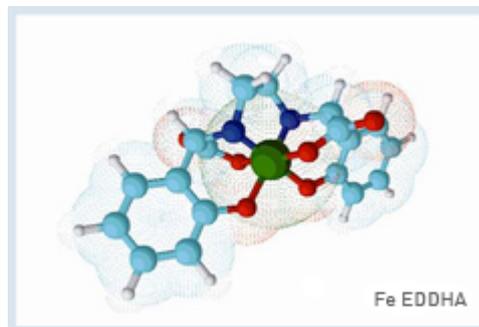
This chelating molecule consists of a group containing ethylenediamine EDA connected with two phenol groups. Carbon in the para position of phenol is linked to a sulfonic group (-SO₃H).

This guarantees a high percentage of links in *orto* position; a larger amount of links in *orto* position, gives a better **quality** to the product.



EDDHA

This chelating molecule consists of a group containing ethylenediamine EDA connected with two phenol groups. Carbon in the para position of phenol is linked to one hydrogen.



CHARACTERISTICS

- are used only for root application because of their sensitivity to light
- are very stable since they ensure the availability of micro-nutrient even under conditions of high pH
- their quality depends on the number of links iron molecule in the *orto* position
- are very soluble
- have a microgranular form
- are only with Iron

PRODUCTS

EDDHA CHELATES:

6SH

6SH K

EDDHA CHELATES:

6HH

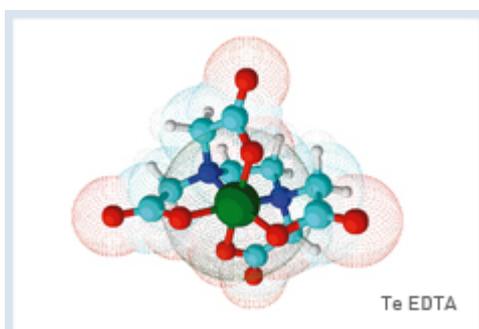
6HM

6HL

CHELATING AGENTS: EDTA

EDTA

This chelating molecule is a polyamino carboxylic acid consisting of ethylenediamine backbone with four acetylic groups.



EDTA CHELATES:

DALT Fe	DALT Mn
DALT Ca	DALT Zn
DALT Cu	DALT Mix 5
DALT Mg	DALT Mix 6

CHARACTERISTICS

- are used both for foliar and root application
- are very resistant to photodegradation
- are very soluble
- can be microgranular or liquid form
- are with Iron, Manganese, Calcium, Copper, Zinc, Magnesium

COMPLEXING AGENT: LSA

LSA

LSA (Ammonium lignosulfonate) is a water-soluble anionic polyelectrolyte polymer. Deriving from cellulose it has a completely natural origin. The metal is linked to the chelating agent only with one or two covalent bonds.

CHARACTERISTICS

- It can be mixed with common fertilizers;
- It reduces phytotoxicity risks

PRODUCTS

LSA COMPLEXED:

Fe LSA

Mn LSA

Mg LSA

Zn LSA

LSA MIX 5





PRODUCTS

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	6 HM	29
	6 HL	30
EDTA CHELATES	DALT Fe	31
	DALT Ca	32
	DALT Cu	33
	DALT Mg	34
	DALT Mn	35
	DALT Zn	36
	DALT Mix 5	37
DALT Mix 6	38	
LSA COMPLEXES	Fe LSA	39
	Mn LSA	40
	Mg LSA	41
	Zn LSA	42
	LSA Mix 5	43



AU 15%

GENERAL INFORMATION

Description	Liquid Humic Extract from Leonardite
CAS Number	68131-04-4
EC Number	268-608-0
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	AU 15% is a liquid extract from North Dakota Leonardite, a fossil substance between lignite and peat, originated from the centenarian natural process of forest's humification. AU 15% is very rich in humic acids that contribute to the fertility of the soil and makes nutritive elements more available for plants.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Liquid	-	-	-
Colour	Black	-	-	-
Density (20°C)	1100	Kg/m ³	1050	1150
pH sol. 1% (20°C)	10.2	-	9.4	10.9
Solubility (20°C)	Complete	g/L	N/A	N/A
Granular size	N/A	mm	N/A	N/A

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Organic Matter	11	%	5	-	N/A
Organic Matter (in % of dry weight)	66	%	-	-	N/A
Humified Organic Matter (as % of organic matter)	96	%	72	-	N/A
Organic Nitrogen (N) or (in % of dry weight)	0.65	%	-	-	N/A
C/N ratio	51	-	-	-	N/A

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

	Value	Units	Min Value	Max Value	Stable in pH interval
Total Humic Extract	15	%	13.5	18	N/A
Humic Acids	12	%	10.8	14.4	N/A
Fulvic Acids	3	%	2.7	3.6	N/A

Analytical Methods according to RD 1110/1991 BOE n° 17

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 10822030413141	1000 L	1x1000 L	1000 L	1000 L	Standard



HUMIG 80

[CLICK HERE FOR MULTIMEDIA CONTENT](#)

GENERAL INFORMATION

Description	Humic Extract from Leonardite
CAS Number	1415-93-6
EC Number	215-809-6
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	Humic 80 is a Leonardite solid extract, originated from the centenarian natural process of forest's humification. Humic acids upgrade the chemical and physical characteristics of the soil by improving its structure and fertility. They can also help to detoxify the soil from heavy metals and to increase root micronutrients absorption. Humic 80 is ideal for the production of special soil conditioners but it can be used as raw material for high quality biostimulants and also as an NPK coater. It's miscible with a large variety of natural extracts and trace elements.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Black	-	-	-
Density (20°C)	620	Kg/m ³	570	670
pH sol. 1% (20°C)	10.9	-	9.9	11.9
Solubility (20°C)	300	g/L	250	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Organic Matter	70	%	-	-	N/A
Organic Matter (in % of dry weight)	73.6	%	-	-	N/A
Humified Organic Matter (as % of organic matter)	75	%	-	-	N/A
Organic Nitrogen (N org) (in % of dry weight)	0.74	%	-	-	N/A
C/N ratio	50	-	-	-	N/A

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

	Value	Units	Min Value	Max Value	Stable in pH interval
Total Humic Extract	45	%	42	51	N/A
Humic Acids	41	%	39	45	N/A
Fulvic Acids	4	%	3.6	4.8	N/A

Analytical Methods according to RD 1110/1991 BOE n° 17

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 12449301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard

FULVIC 100

[CLICK HERE FOR MULTIMEDIA CONTENT](#)

GENERAL INFORMATION

Description	Fulvic Acids
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	Fulvic 100 is a Leonardite solid extract, originated from the centenarian natural process of forest's humification. Fulvic acids combine with soil micronutrients and makes them more available for plants. They act as natural chelating agent, increase the H ⁺ stimulate componets of the ATP and have a hormone-like activity on roots. Fulvic 100 is ideal for the production of special soil conditioners but it can be used as raw material for high quality biostimulants and also as an NPK coater. It's miscible with a large variety of natural extracts and trace elements.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	620	Kg/m ³	570	670
pH sol. 1% (20°C)	5	-	4.2	5.7
Solubility (20°C)	300	g/L	290	-
Granular size < 0.5 mm	90	%	85	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Organic Matter	72.5	%	-	-	N/A
Fulvic Acids	32	%	-	-	N/A

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 12450301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard




[CLICK HERE FOR MULTIMEDIA CONTENT](#)

GENERAL INFORMATION

Description	Iron chelated with EDDHSA
CAS Number	84539-54-8
EC Number	283-042-4
Chemical Formula	C ₁₈ H ₁₆ O ₁₂ N ₂ S ₂ FeNa ₃
Molecular Weight	641,3
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	6 SH is Iron (Fe) chelated with EDDHSA. Iron(Fe) plays an important role in Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase). 6 SH thanks to its percentage of Iron (Fe) chelated by [o-o] EDDHSA is ideal for the production of fertilizer against Chlorosis. The chelating agent EDDHSA in comparison with EDDHA has a greater range of pH stability.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Dark red	-	-	-
Density (20°C)	750	Kg/m ³	700	800
pH sol. 1% (20°C)	7.5	-	6.5	8.5
Solubility (20°C)	350	g/L	330	-
Granular size < 0.5 mm	98	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	6	%	5.6	-	N/A
Total chelated fraction	100	%	-	-	-
of which Iron (Fe), EDDHSA chelated	3.2	%	-	-	0.0-12.0

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11058282913141	500 Kg	1x500 Kg	1500 Kg	1000 Kg	Standard
PRODUCT CODE 11058301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 11058732413141	5 Kg	4x5 Kg	1000 Kg	1000 Kg	Standard




[CLICK HERE FOR MULTIMEDIA CONTENT](#)

GENERAL INFORMATION

Description	Iron chelated with EDDHSA
CAS Number	N/A
EC Number	462-490-7
Chemical Formula	C18H16O12N2S2FeK3
Molecular Weight	689,6
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES - Full Registration Completed

MARKETING INFORMATION

General Description	6SH K is Iron (Fe) chelated with EDDHSA. Iron (Fe) plays an important role in Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase). The chelating agent EDDHSA in comparison with EDDHA has a greater range of pH stability. 6 SH K thanks to its percentage of Iron (Fe) chelated by [o-o] EDDHSA and its large amount of Potassium Oxide (K2O) is ideal for the production of fertilizer rich in Potassium (K) and against chlorosis.
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PHYSICAL PROPERTIES	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Dark Red	-	-	-
Density (20°C)	770	Kg/m ³	720	820
pH sol. 1% (20°C)	8	-	7	9
Solubility (20°C)	400	g/L	380	-
Granular size < 0.5 mm	98	%	90	100

CHEMICAL PROPERTIES	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	6	%	5.6	-	N/A
Iron (Fe), EDDHSA chelated	3.2	%	-	-	0.0 - 12.0
Potassium Oxide (K2O), water soluble	23	%	-	-	N/A

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11307282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11307301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard





GENERAL INFORMATION

Description	Iron chelated with EDDHA
CAS Number	84539-55-9
EC Number	283-044-5
Chemical Formula	C ₁₈ H ₁₆ O ₆ N ₂ FeNa
Molecular Weight	435,2
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	6 HH is Iron (Fe) chelated with EDDHA. Iron (Fe) plays an important role in Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase). 6 HH thanks to its percentage of Iron (Fe) chelated by [o-o] EDDHA analyzed by Method EN 13368, is ideal for the production of fertilizer against the Iron deficiency and its symptoms.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Black	-	-	-
Density (20°C)	660	Kg/m ³	610	710
pH sol. 1% (20°C)	8.7	-	7.7	9.7
Solubility (20°C)	40	g/L	20	-
Granular size < 0.5 mm	95	%	85	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	6	%	5,6	-	N/A
Iron (Fe), EDDHA chelated fraction	100	%	-	-	-
of which Iron (Fe), EDDHA (o,o) chelated	4.8	%	4.4	-	4.0 - 10.0

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 12033282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 12033301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 12033732413141	5 Kg	4x5 Kg	800 Kg	800 Kg	Standard





GENERAL INFORMATION

Description	Iron chelated with EDDHA
CAS Number	84539-55-9
EC Number	283-044-5
Chemical Formula	C18H16O6N2FeNa
Molecular Weight	435,2
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	6 HM is Iron (Fe) chelated by EDDHA. Iron (Fe) plays an important role Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase). 6 HM is ideal for the production of fertilizer against the Iron deficiency and its symptoms. In comparison with 6 HH it has a lower percentage of Iron in [o-o] position but the same pH range of stability.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Dark red - black	-	-	-
Density (20°C)	670	Kg/m ³	620	720
pH sol. 1% (20°C)	8.7	-	7.7	9.7
Solubility (20°C)	50	g/L	40	-
Granular size < 0.5 mm	95	%	85	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	6	%	5.6	-	N/A
Iron (Fe), EDDHA chelated fraction	100	%	-	-	-
of which Iron (Fe), EDDHA [o,o] chelated	4	%	3.6	-	4.0 - 10.0

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 12457282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 12457301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 12457732413141	5 Kg	4x5 Kg	800 Kg	800 Kg	Standard





GENERAL INFORMATION

Description	Iron chelated with EDDHA
CAS Number	84539-55-9
EC Number	283-044-5
Chemical Formula	C ₁₈ H ₁₆ O ₆ N ₂ FeNa
Molecular Weight	435,2
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	6 HL is Iron (Fe) chelated with EDDHA. Iron (Fe) plays an important role in Respiratory process, Chlorophyll synthesis, Enzymatic activation, Enzyme structure (Nitrogenase, Nitrate reductase, Sulphate reductase, NADPH reductase). 6 HL with its high level of solubility is ideal for the production of fertilizer against the Iron deficiency and its symptoms. It has the same pH range of stability of 6HH and 6 HM but has a lower percentage of Iron in [o-o] position.
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PHYSICAL PROPERTIES	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Dark red - black	-	-	-
Density (20°C)	600	Kg/m ³	550	650
pH sol. 1% (20°C)	8	-	7	9
Solubility (20°C)	250	g/L	230	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	6	%	5,6	-	N/A
Iron (Fe), EDDHA chelated fraction	100	%	-	-	-
of which Iron (Fe), EDDHA chelated	6	%	-	-	4.0 - 10.0

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 12180282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 12180301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 12180732413141	5 Kg	4x5 Kg	800 Kg	800 Kg	Standard



DALT Fe**GENERAL INFORMATION**

Description	Iron chelated with EDTA
CAS Number	15708-41-5
EC Number	239-802-2
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ FeNa ₃ H ₂ O
Molecular Weight	421,1
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DALT Fe is Iron(Fe) chelated with EDTA, chelating agent with a medium constant of stability. DALT Fe helps to prevent and treat Iron Chlorosis and its typical symptoms. Thanks to its percentage of Iron(Fe) water soluble and its ph DALT Fe is ideal for the production of fertilizers for soil and plants lacking in Iron.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Crystals	-	-	-
Colour	Yellow	-	-	-
Density (20°C)	1100	Kg/m ³	1050	1150
pH sol. 1% (20°C)	4.5	-	3.5	5.5
Solubility (20°C)	90	g/L	80	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Iron (Fe), water soluble	13	%	12,6	-	N/A
Total chelated fraction	100	%	-	-	-
of which Iron (Fe), EDTA chelated	13	%	-	-	1.0 - 6.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11050282913141	50 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11050301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 11050301813142	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 Version



DALT Ca

GENERAL INFORMATION

Description	Calcium chelated with EDTA
CAS Number	62-33-9
EC Number	200-529-9
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ CaNa ₂
Molecular Weight	374,3
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DALT Ca is Calcium (Ca) chelated with EDTA. DALT Ca helps to prevent and treat Calcium deficiency. It is ideal for the formulation of fertilizers rich in Calcium, important in the life of a plant playing an important role in cell membrane's reconstruction.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	White	-	-	-
Density (20°C)	800	Kg/m ³	750	850
pH sol. 1% (20°C)	6.5	-	5.5	7.5
Solubility (20°C)	800	g/L	780	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Calcium (Ca), water soluble	10	%	9.36	-	N/A
Total chelated fraction	100	%	-	-	-
of which Calcium (Ca), EDTA chelated	10	%	-	-	5.0 - 14.0

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11509282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11509301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard



DALT Cu

GENERAL INFORMATION

Description	Copper chelated with EDTA
CAS Number	14025-15-1
EC Number	237-864-5
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ CuNa ₂
Molecular Weight	396,7
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DALT Cu is Copper (Cu) chelated with EDTA in soluble microgranules. Thanks to its percentage of Copper (Cu) water soluble DALT Cu is ideal for the formulation of fertilizers rich in soluble Copper, necessary in the metabolism of carbohydrates and nitrogen and also required for the synthesis of lignin.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Blue	-	-	-
Density (20°C)	870	Kg/m ³	820	920
pH sol. 1% (20°C)	6	-	5	7
Solubility (20°C)	1200	g/L	1180	-
Granular size < 0.5 mm	90	%	85	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Copper (Cu), water soluble	15	%	14.6	-	N/A
Total chelated fraction	100	%	-	-	-
of which Copper (Cu), EDTA chelated	15	%	-	-	2.0-14.0

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11648282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11648301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 11648301813142	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 Version



DALT Mg

GENERAL INFORMATION

Description	Magnesium chelated with EDTA
CAS Number	14402-88-1
EC Number	238-372-3
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ MgNa ₂
Molecular Weight	358,5
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DALT Mg is Magnesium (Mg) chelated with EDTA in soluble microgranules. Thanks to its percentage of Magnesium Oxide DALT Mg is ideal for the formulation of fertilizers rich in soluble Magnesium that plays an important role in photosynthesis in the formation of sugars, proteins, fats and vitamins.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	White	-	-	-
Density (20°C)	800	Kg/m ³	750	850
pH sol. 1% (20°C)	7.6	-	6.6	8.6
Solubility (20°C)	900	g/L	880	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Magnesium Oxide (MgO), water soluble	10	%	9.1	-	N/A
Total chelated fraction	100	%	-	-	-
of which Magnesium Oxide (MgO), EDTA chelated	10	%	-	-	3.0-12.5

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11649301813141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11649282913141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard



DALT Mn

GENERAL INFORMATION

Description	Manganese chelated with EDTA
CAS Number	15375-84-5
EC Number	239-407-5
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ MnNa ₂
Molecular Weight	389,1
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DALT Mn is Manganese chelated with EDTA in soluble microgranules. Thanks to its percentage of Manganese (Mn) water soluble, DALT Mn is ideal for the formulation of fertilizers rich in soluble Manganese (Mn), important in photosynthesis, nitrogen metabolism and plants metabolism.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Beige	-	-	-
Density (20°C)	850	Kg/m ³	800	900
pH sol. 1% (20°C)	6.5	-	5.5	7.5
Solubility (20°C)	800	g/L	780	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Manganese (Mn), water soluble	13	%	12.6	-	N/A
Total chelated fraction	100	%	-	-	-
of which Manganese (Mn), EDTA chelated	13	%	-	-	3.0-12.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11656282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11656301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 11656301813142	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 Version



DAIT Zn**GENERAL INFORMATION**

Description	Zinc chelated with EDTA
CAS Number	14025-21-9
EC Number	237-865-0
Chemical Formula	C ₁₀ H ₁₂ O ₈ N ₂ ZNNA ₂
Molecular Weight	399,6
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	YES

MARKETING INFORMATION

General Description	DAIT Zn is Zinc chelate with EDTA in microgranules. Thanks to its percentage of Zinc (Zn) water soluble and its solubility DAIT Zn is ideal for the formulation of fertilizers rich in Zinc (Zn), essential component of several enzymes related to energy production, proteins' synthesis and growth's regulation.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	White	-	-	-
Density (20°C)	900	Kg/m ³	850	950
pH sol. 1% (20°C)	6.5	-	5.5	7.5
Solubility (20°C)	1000	g/L	980	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Zinc (Zn), water soluble	15	%	14.6	-	N/A
Total chelated fraction	100	%	-	-	-
of which Zinc (Zn), EDTA chelated	15	%	-	-	2.0-12.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11655282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11655301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard
PRODUCT CODE 11655301813142	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 Version



DALT MIX 5

GENERAL INFORMATION

Description	Solid mixture of Copper, Iron, Manganese, Zinc chelated with EDTA, Boron, Molybdenum and Magnesium
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	DALT MIX 5 is a solid mixture of micronutrients with Boron (B), Copper (Cu), Iron (Fe), Molybdenum (Mo), Zinc (Zn) and Magnesium Oxide (MgO). Thanks to its richness of micronutrients it's ideal for the formulation of complete fertilizers for soil and plants lacking in microelements.
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PHYSICAL PROPERTIES	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Yellow-green	-	-	-
Density (20°C)	990	Kg/m ³	940	1040
pH sol. 1% (20°C)	4.5	-	3.5	5.5
Solubility (20°C)	100	g/L	80	-
Granular size < 0.5 mm	95	%	90	100
CHEMICAL PROPERTIES	Value	Units	Min Value	Stable in pH interval
Magnesium Oxide (MgO), water soluble	5	%	4.1	N/A
Boron (B), water soluble	0.5	%	0.4	N/A
Copper (Cu), water soluble	1.5	%	1.2	N/A
Copper (Cu), EDTA chelated	1.5	%	-	2.0 - 14.0
Iron (Fe), water soluble	4	%	3.6	N/A
Iron (Fe), EDTA chelated	4	%	-	1.0 - 6.5
Manganese (Mn), water soluble	4	%	3.6	N/A
Manganese (Mn), EDTA chelated	4	%	-	3.0 - 12.5
Zinc (Zn), water soluble	1.5	%	1.2	N/A
Zinc (Zn), EDTA chelated	1.5	%	-	2.0 - 12.5
Molybdenum (Mo), water soluble	0.1	%	0.08	N/A

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11236282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11236301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	Standard

DALT MIX 6

GENERAL INFORMATION

Description	Solid mixture of Copper, Iron, Manganese, Zinc chelated with EDTA, Molybdenum
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	DALT MIX 6 is a solid mixture of micronutrients with Copper (Cu), Iron (Fe), Manganese(Mn), Molybdenum (Mo) and Zinc (Zn). Thanks to its richness of micronutrients it's ideal for the formulation of complete fertilizers for soil and plants lacking in microelements.
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PHYSICAL PROPERTIES	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Green	-	-	-
Density (20°C)	1100	Kg/m ³	1050	1150
pH sol. 1% (20°C)	4.7	-	3.7	5.7
Solubility (20°C)	100	g/L	80	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES	Value	Units	Min Value	Max Value	Stable in PH interval
Copper (Cu), water soluble	0.8	%	0.64	-	N/A
Copper (Cu), EDTA chelated	0.8	%	-	-	2.0-14.0
Iron (Fe), water soluble	7.4	%	7	-	N/A
Iron (Fe), EDTA chelated	7.4	%	-	-	1.0-6.5
Manganese (Mn), water soluble	3.7	%	3.3	-	N/A
Manganese (Mn), EDTA chelated	3.7	%	-	-	3.0-12.5
Zinc (Zn), water soluble	1.1	%	0.88	-	N/A
Zinc (Zn), EDTA chelated	1.1	%	-	-	2.0-12.5
Molybdenum (Mo), water soluble	0.5	%	0.4	-	N/A

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11500282913142	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11500282913141	500 Kg	1x500 Kg	1000 Kg	1000 Kg	Standard
PRODUCT CODE 11500301813141	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 Version
PRODUCT CODE 11500301813142	10 Kg	2x10 Kg	960 Kg	960 Kg	E1 version

Fe LSA**GENERAL INFORMATION**

Description	Iron complexed with LSA
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	LSA is an agent with an high affinity with plant tissues, thanks to its natural origin from lignine. The high content in Iron (Fe) helps to prevent and treat Iron Chlorosis and its typical symptoms.
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PHYSICAL PROPERTIES	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	650	Kg/m ³	600	700
pH sol. 1% (20°C)	3.3	-	2.3	4.3
Solubility (20°C)	400	g/L	N/A	N/A
Granular size < 0.5 mm	97	%	92	100

CHEMICAL PROPERTIES	Value	Units	Min Value	Max Value	Stable in PH interval
Iron (Fe), water soluble	10.0	%	9,6	-	N/A
Total complexed fraction	100	%	-	-	N/A
of which Iron (Fe), LSA complexed	10.0	%	-	-	3.0-8.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11286286313141	400 Kg	1x400 Kg	800 Kg	800 Kg	Standard



Mn LSA**GENERAL INFORMATION**

Description	Manganese complexed with LSA
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	LSA is an agent with a high affinity with plant tissues, thanks to its natural origin from lignine. Thanks to its percentage of Manganese (Mn) water soluble, Mn LSA is ideal for the formulation of fertilizers rich in soluble Manganese (Mn), important in photosynthesis, nitrogen metabolism and plants metabolism.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	650	Kg/m ³	600	700
pH sol. 1% (20°C)	3.3	-	2.3	4.3
Solubility (20°C)	400	g/L	-	-
Granular size < 0.5 mm	97	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Manganese (Mn), water soluble	10.0	%	-	-	N/A
Total complexed fraction	100	%	-	-	-
of which Manganese (Mn), ammonium lignisulphonate (LSA)	10.0	%	-	-	3.0-8.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11284286313141	400 Kg	1x400 Kg	800 Kg	800 Kg	Standard



Mg LSA

GENERAL INFORMATION

Description	Magnesium complexed with LSA
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Non Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	Mg LSA is Magnesium (Mg) complexed with LSA. Magnesium plays an important role in photosynthesis in the formation of sugars, proteins, fats and vitamins. Thanks to its percentage of Magnesium Oxide (MgO), Mg LSA is perfect for the formulation of microgranules fertilizers rich in Magnesium (Mg).
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	590	Kg/m ³	540	640
pH sol. 1% (20°C)	3.4	-	2.4	4.4
Solubility (20°C)	300	g/L	280	-
Granular size < 0.5 mm	95	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Magnesium Oxide (MgO), water soluble	8.0	%	7.1	-	N/A
Total complexed fraction	100	%	-	-	-
of which Magnesium Oxide (MgO), LSA complexed	8.0	%	-	-	3.0-8.5

Analytical Methods according to Italian GU, 26th June 2006, n° 21, DM 21/12/2000 suppl. n°6

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11044286313141	400 Kg	1x400 Kg	800 Kg	800 Kg	Standard



Zn LSA

GENERAL INFORMATION

Description	Zinc complexed with LSA
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	LSA is an agent with an high affinity with plant tissues, thanks to its natural origin from lignine. In Zn LSA Zinc (Zn) is complexed with LSA, assuring the availability of this microelement that is an essential component of several enzymes related to energy production, proteins synthesis and growth's regulation.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	600	Kg/m ³	550	650
pH sol. 1% (20°C)	3.5	-	2.5	4.5
Solubility (20°C)	300	g/L	-	-
Granular size < 0.5 mm	96	%	87	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in pH interval
Zinc (Zn), water soluble	10.0	%	9.6	-	N/A
Total complexed fraction	100	%	-	-	-
of which Zinc (Zn), LSA complexed	10.0	%	-	-	3.0-8.5

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11285286313141	400 Kg	1x400 Kg	800 Kg	800 Kg	Standard



LSA MIX 5

GENERAL INFORMATION

Description	Solid mixture of Copper, Iron, Manganese, Zinc complexed with LSA, Boron and Molybdenum
CAS Number	N/A
EC Number	N/A
Chemical Formula	N/A
Molecular Weight	N/A
Reg. EC 889/2008 Organic Agriculture	Compliant
REACH pre-registered	Not Applicable

MARKETING INFORMATION

General Description	LSA MIX 5 is a solid mixture of Boron (B), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo) and Zinc (Zn) complexed with LSA. Thanks to its richness of microelements, LSA MIX 5 is perfect for the formulation of complete fertilizers for micronutrients deficiency.
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PHYSICAL PROPERTIES

	Value	Units	Min Value (internal)	Max Value (internal)
Appearance	Microgranules	-	-	-
Colour	Brown	-	-	-
Density (20°C)	650	Kg/m ³	600	700
pH sol. 1% (20°C)	3.9	-	2.9	4.9
Solubility (20°C)	350	g/L	330	-
Granular size < 0.5 mm	98	%	90	100

CHEMICAL PROPERTIES

	Value	Units	Min Value	Max Value	Stable in PH interval
Boron (B), water soluble	0.9	%	0.72	-	N/A
Copper (Cu), water soluble	0.3	%	0.24	-	N/A
Copper (Cu), LSA complexed	0.3	%	-	-	3.0-8.5
Iron (Fe), water soluble	6.8	%	6.4	-	N/A
Iron (Fe), LSA complexed	6.8	%	-	-	3.0-8.5
Manganese (Mn), water soluble	2.6	%	2.2	-	N/A
Manganese (Mn), LSA complexed	2.6	%	-	-	3.0-8.5
Zinc (Zn), water soluble	1.1	%	0.88	-	N/A
Zinc (Zn), LSA complexed	1.1	%	-	-	3.0-8.5
Molybdenum (Mo), water soluble	0.2	%	0.16	-	N/A

Analytical Methods according to Reg. EC 2003/2003, consolidated 04/07/2012

PALLETIZATION

	Pack size	Secondary packaging	Pallet container	Pallet truck	Notes
PRODUCT CODE 11200286313141	400 Kg	1x400 Kg	800 Kg	800 Kg	Standard

