



FACI ADDITIVES:
food and feed industry



FACI Group - Your partner for food and feed

FACI is a global Group of Companies, active in the production and marketing of natural-based oleo chemical additives from renewable feedstock since 1943.

The continuous desire and propensity for finding the best balance between quality, competitiveness and sustainability is the driver of our daily activities and has existed in the company's culture since its foundation.

The keys to our success are: continuous technical development, close attention to the quality standards of

our chemicals and their production process, an open-minded approach to local and international markets and a close cooperation with our customers.

The food additives and feed materials derived from stearic acid (both of animal and vegetable origin) are part of our specialties. Their production reflects the current regulations in force with a high focus on quality based on an in-depth risk assessment.

All our production sites have an ISO 9001 certification that is the basis of our quality policy.

Production sites:
 • FACI S.p.A. Carasco - GE Italy • FACI METALEST, S.L.U. - Zaragoza Spain • FACI UK CHEMICALS Ltd - Merseyside UK • FACI ASIA PACIFIC Pte Ltd - Singapore



FACI Guaranteed Quality, Respect for the Environment

FACI Group products for food and feed market

The FACI Group is strongly committed to working with the food and feed industries and can supply this market from four of our seven worldwide production units (Italy, Spain, UK and Singapore). The ingredients for food and feed applications are manufactured according to the highest standard of Good Manufacturing Practices. FACI provides a wide range of non-toxic metal soaps and esters from fatty acids derived

from both animal and vegetable based raw materials, as listed in the table below:

Food Additives	Feed materials
Calcium Stearate	Calcium Stearate
Magnesium Stearate	Magnesium Stearate
Potassium Stearate	Potassium Stearate
Sodium Stearate	Sodium Stearate
Glyceryl Monostearate	Stearic Acid
Glyceryl Monooleate	Glyceryl Monostearate



FOOD ADDITIVES LIST



OUR PROCESS

- Experience and development of an optimized in-house process using selected and audited raw material suppliers, for high quality and consistent products with a very low heavy metal content.
- The first production of Stearate started in the early seventies and the company has succeeded in supplying specialties according to market requirement and change ever since.
- Dedicated equipment and lines are used for each class of product.

Faci can supply naturally-based products, produced from the following raw materials:

- Vegetable based products: Palm origin & other vegetable oils.
- Tallow based products: BSE/TSE free.

Manufacturing - Site	Vegetable based	Animal based
FACI S.p.A. - Italy	✓	✓
FACI METALEST, S.L.U. - Spain	✓	✓
FACI UK Chemicals Ltd - UK	✓	-
FACI Asia Pacific Pte Ltd - Singapore	✓	-

Sustainability: Available RSPO MB, SG certified vegetable grade products.



	FCC	E470a	E470b	E471	Physical form	FACI Asia Pacific Pte Ltd Singapore	FACI METALEST, S.L.U. Spain
Calcium Stearate	✓	✓			powder	✓	✓
Magnesium Stearate	✓		✓		powder	✓	✓
Sodium Stearate		✓			powder	✓	
Potassium Stearate		✓			powder	✓	
Calcium Palmitate	✓	✓			powder	✓	
Glyceryl Monostearate	✓			✓	powder	✓	
Glyceryl Monostearate SE	✓			✓	powder	✓	
Glyceryl Monoleate				✓	liquid	✓	

Compliance with:

- European Legislation (E numbers): Commission Regulation EU 231/2012.
- US FCC (Food Chemical Codex).
- Plants FDA registered.
- RSPO MB, SG available.

Metal Stearate properties

The Stearate salts, including Calcium Stearate, Magnesium Stearate, Potassium Stearate, Sodium Stearate are fine white powders.

The commercial grade of stearic acid used to produce the Stearate salts contains fatty acids that range from C12 carbon atoms to C22 carbon atoms. The major components being: C18 (stearic acid) and C16 (palmitic acid).

In food and feed products, Calcium and Magnesium

Stearates (which are water-insoluble metallic Stearates) are used mainly as: anti-caking agents, flowability agents during processing, water-repellents, coating agents and viscosity controlling agents for non-aqueous preparations.

Sodium and Potassium salts (metal steirates soluble in warm and cold water - Pubchem) find their use as gelling agents in water solutions or anti-caking and coating agents in powder preparations.



Glyceryl ester properties

This category of substances are mainly used for their emulsifying properties, that help to keep emulsions from separating into their oil, and liquid components, and their energetic contribution, thus enhancing the nutritional power of the final foodstuff.



Magnesium Stearate-Usage:

Binder of sugar in hard candies (Chewing gum, sweeteners, sugar cubes, sweets, cookies, jams, baked goods, batter, pates), tableting agents.
Common ingredient in baby formulas.



Sodium Stearate and Potassium Stearate-Usage:

Components of food additives and food flavourings. Due to having both hydrophilic and hydrophobic nature, Sodium Stearate molecules can form micelles, presenting their hydrophilic heads outwards and their hydrophobic tails inwards, providing a lipophilic environment for hydrophobic compounds to exist in.



Calcium Stearate-Usage:

Tableting agents and surface hardeners in hard and tableted candies.

Glyceryl Monostearate-Usage

GMS E: has a content of Glycerol Monostearate of 40% min.

GMS SE E: is GMS E with self-emulsifying properties
GMS 90 E: has a content of Glycerol Monostearate of 90% min.

Usage: mainly in baking preparations to add body to the food.





Summary of types of additives and related parameters:

- Site Certification FSSC 22000 SG17/05496.
- All products are KOSHER and HALAL.
- Available RSPO MB, SG.



Calcium Palmitate

Code	FCC	E470a	E470b	Oxide Content %	Sieve Residue %	Bulk Density g/l	Loss on drying %	Free Fatty Acids %
CAP-E				9.0 – 10.5	≤1.0 (200 mesh)	≤260	≤4.0	≤1.5

Calcium Stearate

Code	FCC	E470a	E470b	Oxide Content %	Sieve Residue %	Bulk Density g/l	Loss on drying %	Free Fatty Acids %
CAS-E				9.0 – 10.5	≤1.0 (200 mesh)	≤260	≤4.0	≤1.5
CAS-EW				9.0 – 10.5	≤1.0 (325 mesh)	≤260	≤4.0	≤1.5
CAS-EWT				9.0 – 10.5	≤1.0 (325 mesh)	≤260	≤4.0	≤1.5
CAS-SPE				9.0 – 10.5	min 25 (60mesh)	400 – 600	≤4.0	≤1.5

Magnesium Stearate

Code	FCC	E470a	E470b	Oxide Content %	Sieve Residue %	Bulk Density g/l	Loss on drying %	Free Fatty Acids %
MGS-E				6.8 – 8.3	*0.3 (200 mesh)	200*	≤4.0	≤2.0
MGS-EW				6.8 – 8.3	≤1.0 (325 mesh)	200*	≤4.0	≤2.0
MGS-ET				6.8 – 8.3	*0.3 (325 mesh)	200*	≤4.0	≤2.0

* typical values

Potassium Stearate

Code	FCC	E470a	E470b	Oxide Content %	Sieve Residue %	Bulk Density g/l	Loss on drying %	Free Fatty Acids %
KST-E				13 – 21.5	≤30 (60 mesh)	200 - 350	≤2.0	≤2.0

Sodium Stearate

Code	E470b	FCC	E470a	Oxide Content %	Sieve Residue %	Bulk Density g/l	Loss on drying %	Free Fatty Acids %
NAS-E				9.0 – 14.0	≤1.0 (100 mesh)	200 - 320	≤2.0	≤1.5

Glycerol Monooleate

Code	FCC	E471	Monoglycerides Content %	Acid Value mgKOH/g	Free Glycerol %	Water (K.F) %	Iodine Value gl/100g
GMO-E			35 – 52	≤6.0	≤6.0	≤1.0	*80

Glycerol Monostearate

Code	FCC	E471	Monoglycerides Content %	Acid value mgKOH/g	Free Glycerol %	Water (K.F) %	Iodine Value gl/100g
GMS-E			min 40	≤6.0	≤2.0	≤2.0	*0.4
GMS-50 E			min 50	≤6.0	≤2.0	≤2.0	*0.4
GMS-90 E			min 90	≤6.0	≤1.0	≤2.0	*0.4
GMS-95 E			min 95	≤6.0	≤1.0	≤2.0	*0.4

* typical values



FACI METALEST (Zaragoza - Spain) FOOD ADDITIVES

- Site Certification 22000 n° ES084236-1.
- Available RSPO MB or SG.



FEED MATERIALS LIST



Calcium Stearate

Code	FCC	E470a	E470b	Oxide Content %	FFA %	Loss on drying %	Sieve residue % 325 mesh	Bulk Density g/l
M-205 E				9.0 – 10.5	≤1.0	≤4.0	≤1.0*	290*

* typical values

Magnesium Stearate

Code	FCC	E470a	E470b	Oxide Content %	FFA %	Loss on drying %	Sieve residue % 325 mesh	Bulk Density g/l
M-125 E				6.6 – 8.3	≤1.0	≤5.0	≤1.0*	280*

* typical values



Product name	Physical form	FACI S.p.A. Carasco	FACI METALEST, S.L.U. Spain	FACI UK Chemicals Ltd UK
Calcium Stearate FM	powder	✓	✓	✓
Magnesium Stearate FM	powder	✓	✓	
Sodium Stearate FM	powder	✓		
Potassium Stearate FM	powder	✓		
Stearic Acid FM	microbeads	✓		
Glycerilmonostearate FM	microbeads	✓		

Compliance with European Legislation:

- Regulation (EU) N° 962/2019, on additives for use in animal nutrition.
- Regulation (EC) N° 767/2009, specifications and labels for feed materials.
- Regulation (EC) N° 1017/2017, catalogue of feed materials.
- Regulation (EC) N° 183/2005, laying down requirements for feed hygiene.
- Regulation (EC) N° 1069/2009, laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) N° 1774/2002 (Animal by-products Regulation).

Calcium Stearate-Usage:

The Calcium Stearate acts as a water proofing agent. It is generally used to prevent the pellets from becoming mushy in wet conditions or powder to become compacted. Anti-caking agent and common ingredient in the production of pellet formula and performance minerals in animal feed or in free access minerals.

Sodium Stearate and Potassium Stearate-Usage:

Components of food additives and food flavourings. Due to having both hydrophilic and hydrophobic nature, Sodium Stearate molecules can form micelles, presenting their hydrophilic heads outwards and their hydrophobic tails inwards, providing a lipophilic environment for hydrophobic compounds to exist in.

Magnesium Stearate-Usage:

The Magnesium Stearate is used for its anti-caking and water-repellent properties, and also as coating or flowability agent. Common ingredient in pellet formulas or in granulates.

Stearic Acid-Usage:

Stearic Acid is used for its properties as a lubricant, emulsifier, emulsion stabilizing agent or even filler coating and surface active agent.



FACI METALEST (Zaragoza, SPAIN) - FEED MATERIALS

Certifications and Authorizations:

- Registration number, αESP50297208, to manufacture Calcium Stearate and Magnesium Stearate vegetable grade.

Ingredient/product	Calcium Stearate Content %	Metal content %	Free Fatty acids %	Free Fatty acids %	Origin
Magnesium Stearate M-125 FM	94.0% min	4.0 – 5.0	≤1.0*	≤1.0 (325 mesh)*	Vegetable
Calcium Stearate M-205 FM	95% min	6.4 – 7.4	≤1.0*	≤1.0 (325 mesh)*	Vegetable

* typical values

FACI S.p.A. (Carasco, ITALY) - FEED MATERIALS

Certifications and Authorizations:

- FAMI-QS: Production and trading of additives – Calcium stearate and Magnesium stearate.
- Reg.(EC)183/2005 authorization n° ITa000101GE for the production of vegetable grade feed materials for feedstock animals.
- Reg. (EC)1069/2009 authorization n° IT2032 CE for the production of animal grade feed materials for PETS.

Ingredient/product	Substance Content %	Oxide content %	Free Fatty acids %	Sieve Residue %	Origin
Magnesium Stearate FM	94.5% min	7.2 – 8.0	≤1.5	≤2.0 (200 mesh)	Vegetable or animal
Calcium Stearate FM	96% min	6.5 – 7.2	≤1.0	≤1.0 (200 mesh)	Vegetable or animal
Sodium Stearate FM	96% min	9.0 – 14.0	≤2.0	≤0.5 (100 mesh)	Vegetable or animal

Ingredient/product	Monoglycerides Content %	Free glycerol %	Free Fatty acids %	Ash %	Origin
Glycerilmonostearate FM	40.0% min	≤2.0	≤1.0	≤0.1	Vegetable or animal

Ingredient/product	Substance Content %	Acid Value mgKOH/g	Free Fatty acids %	Titre °C	Origin
Stearic Acid vegetable FM	99.0% min	203 – 210	53 – 58	≤1.0	Vegetable

FACI UK (Leeds, UK) - FEED MATERIALS

Certifications and Authorizations:

- FEMAS certificate n° 42075: "Production and supply of Calcium Stearate intended for incorporation into free access minerals and pellets for livestock".

Ingredient/product	Calcium Stearate Content %	Ca content %	Sieve Residue 150 micron %	Free Fatty acids %	Origin
Calcium Stearate feed grade	95% min	6.7 – 7.7	≤10	≤1.5	Vegetable





Manufacturing sites, certifications and authorization

The applied certifications are reported in the below table:

Site - Manufacturer	STANDARD	FOOD - FEED	OTHERS
FACI S.p.A. - Italy	ISO 9001: 2015 ISO 14001: 2015 ISO 45001: 2018	FAMI-QS	EXCIPACT RSPO MB/SG
FACI METALEST, L.S.U. - Spain	ISO 9001: 2015	ISO 22000	RSPO MB/SG
FACI UK Chemicals Ltd - UK	ISO 9001: 2015 ISO 14001: 2015	FEMAS	
FACI Asia Pacific Pte Ltd - Singapore	ISO 9001: 2015 ISO 14001: 2015 ISO 45001: 2018	FSSC 22000	RSPO MB/SG HALAL KOSHER

RSPO Mass Balance and Segregated Certified Products

FACI S.p.A.: RSPO Mass Balance & Segregated, Certificate number 172226-2015-AQ-ITA-ASI released 10/02/2015
 FACI Asia Pacific Pte Ltd: RSPO Mass Balance & Segregated, Certificate number BVC- RSPO-20140718-1 released 18/07/2014
 FACI Metalest, S.L.U.: RSPO Mass Balance & Segregated, Certificate number 186045-2015-AQ-IBE-ASI released 15/09/2015

PALM OIL POSITION PAPER



The FACI Group identifies the urgent need to protect habitat for wildlife threatened by unsustainable palm oil production and believes that the palm oil industry plays an important role in employment and economic growth for developing countries. Unsustainable palm oil production results in massive deforestation, rapid biodiversity loss in tropical ecosystems and significant greenhouse gas emissions. Global consumption of palm oil and its derivatives is increasing, requiring strong conservation action to save species.

Additionally, the commitment of political and business leaders at the regional and local level could evolve into a successful and sustainable development plan for the palm oil industry. It is critical that the agents involved in the palm oil supply chain will collaborate and work in an environmentally sustainable and responsible way.

The purpose of this paper is to define the FACI Group position on those issues and to describe better the achievement through its own supply chain and through its business activities, regarding:

- ZERO DEFORESTATION
- ROUNDTABLE ON SUSTAINABLE PALM OIL (RSPO)
- TRACEABILITY
- HUMAN RIGHTS INCLUDING LABOR RIGHTS



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