Prolabin&Tefarm

Polymer Additives, Cosmetic Ingredients, Catalysts

R&D PRODUCTS

CATALOGUE

Prolabin&Tefarm
Polymer Additives, Cosmetic Ingredients, Catalysts

PROLABIN & TEFARM provides its research and development laboratories and its thirty-year experience to satisfy PMI innovation needs. Products are based on inorgano-organic nanostructured lamellar materials, useful as polymeric additives, heterogeneous catalysts, active ingredients for cosmetic and pharmaceutical applications.

Compared to conventional additives, nanostructured fillers are eco-friendly, no toxic, halogen free and they don't release any harmful substance even in fire accidents.

Lamellar solids are microfine flowing powders that could be easily mixed and dispersed into every kind of health care formulation. Incorporated into topical formulations, they can be easily applied on skin, avoiding any abrasion problem or halo formation.

Because of their special structural characteristics and biocompatibility, they can be employed into formulations not only as excipients, but also as active ingredients able to improve the safety and the effectiveness.

The insertion of specific metals (even noble metals) with catalytic activity into hydrotalcites and phosphates/phosphonates structures produces highly selective and active heterogeneous precursors or catalysts, with very low environmental impact.

Cutting-edge research, innovation and technological transfer to make our customers leaders in their market

Prolabin&Tefarm
Polymer Additives, Cosmetic Ingredients, Catalysts

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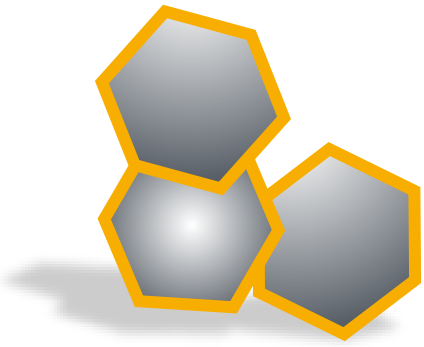

» HEALTH CARE

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Antioxidants
Keratolytics
Antimicrobial/preservatives
Antiacne
Skin brightening
Deodorant/absorbers
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N.S.A.I.D.s
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EXCHANGERS AND INTERCALATING AGENTS

Unmodified hydrotalcites

Hydrotalcites can be used as very efficient anionic exchangers. There are able to intercalate a great variety of species into the interlayer region depending on the nature guest molecules. Hydrotalcites can be employed to scavenge chlorine ions, to purify water from organic and inorganic pollutants, to remove small amounts of acid impurities (that couldn't be removed by conventional adsorbents), for example the impurities in lubricant oils and in plastic materials (HCl into PVC) or heavy metals traces (Pb, Cd, Hg).
Hydrotalcites have an ionic exchange capacity of 3-4 meq/g, similar to ion exchanging resins but with higher thermal resistance. Therefore, hydrotalcites can be used as anionic exchangers also into high temperature processes.

Product	Formula	Property	CODE
MgAl-carbonate	$Mg_4Al_2(OH)_{12}(CO_3)$	Acid scavenger	HT-101
MgAl-chloride	$Mg_2Al(OH)_6(Cl)$	Anionic exchanger	HT-102
MgAl-nitrate	$Mg_2Al(OH)_6(NO_3)$	Anionic exchanger	HT-103
MgAl-acetate	$Mg_2Al(OH)_6(C_2H_3O_2)$	Anionic exchanger	HT-104
ZnAl-carbonate	$Zn_4Al_2(OH)_{12}(CO_3)$	Acid scavenger	HT-201
ZnAl-chloride	$Zn_2Al(OH)_6(Cl)$	Anionic exchanger	HT-202
ZnAl-nitrate	$Zn_2Al(OH)_6(NO_3)$	Anionic exchanger	HT-203
ZnAl-acetate	$Mg_2Al(OH)_6(C_2H_3O_2)$	Anionic exchanger	HT-204

Hydroxy Double salts

Product	Formula	Property	CODE
Zn-hydroxynitrate	$Zn_5(OH)_8(NO_3)_2{\cdot}2H_2O$	Ionic exchanger	HN-100
Ni-hydroxynitrate	$Ni_5(OH)_8(NO_3)_2{\cdot}2H_2O$	Ionic exchanger	HN-200
Cu-hydroxynitrate	$Cu_5(OH)_8(NO_3)_2{\cdot}2H_2O$	Ionic exchanger	HN-300

Hydroxy double salts are layered compounds with a structure very similar to the hydrotalcites-like materials, but without aluminum. They're ideal either for cosmetic applications (also for sensitive skins) as odor-capturer or for health care formulations for the controlled release and protection of active ingredients. Compared to other host species like cyclodextrins, zeolites, fullerenes, hydrotalcites and hydroxy double salts can easily intercalate a great variety of anions without any dimension or charge-density limitation. They have high crystallinity, aspect ratio and exchanging capacity. Lamellar structure is able to protect guest species from oxidative, photodegradative phenomena and in appropriate conditions it's able to control their release.

α and γ Zirconium phosphates and phosphonates are ionic exchangers and intercalating agents that possess very high stability against thermic, mechanic and irradiative stress, they're highly insoluble even in very acid not-complexant solutions.
Moreover, they're particularly useful for the removal/scavenging of every kind of amines and they're highly selective for some specific cations. The ionic exchange capacity is very high (6,6 meq/g).

Zirconium phosphates

Product	Formula	Property	CODE
α-Zirconium Phosphate	$Zr(HPO_4)_2\ H_2O$	Cationic exchanger Amine scavenger	ZP-101
γ-Zirconium Phosphate	$Zr(PO_4)(H_2PO_4)\ 2H_2O$	Cationic exchanger Amine scavenger	ZP-102
α-Zirconium Phosphate ethanol gel dispersion	$Zr(HPO_4)_2$/ethanol	Cationic exchanger Amine scavenger	ZP-101-Et
α-Zirconium Phosphate propanol gel dispersion	$Zr(HPO_4)_2$/propanol	Cationic exchanger Amine scavenger	ZP-101-Pr

Phyllosilicates

Product	Description	Property	CODE
Sodium Bentonite	Natural sodium bentonite	Cationic exchanger Ammonium scavenger	PH-100
Activated Bentonite	Exchanged natural bentonite	Cationic exchanger Ammonium scavenger	PH-200
Hectorite	Synthetic hectorite	Additive/Thickener	PH-300
Sepiolite	Natural sepiolite	Additive	PH-400

Nanomaterials and mesoporous materials

Product	Formula	Properties	CODE
Nanotitania water/isopropanol dispersion	TiO_2 nanoparticles /H_2O, iPrOH	**Additive**	**NM-100**
Nanosilica dispersion	SiO_2 nanoparticles / H_2O	**Additive**	**NM-200**
Mesoporous silica	SiO_2	**Additive**	**NM-300**
Calcium carbonate nanoparticles (NCC)	$CaCO_3$ nanoparticles	**Additive**	**NM-400**
Silver nanoparticles dispersion	Ag nanoparticles	**Additive, antimicrobial**	**NM-500**
Gold nanoparticles dispersion	Au nanoparticles	**Additive**	**NM-600**

Oxides ex-hydrotalcites

Product	Description	CODE
MgAl-oxides	Oxides derived from magnesium-aluminum hydrotalcite calcined at 450°C	**OX-100**
ZnAl-oxides	Oxides derived from zinc-aluminum hydrotalcite calcined at 450°C	**OX-101**
NiAl-oxides	Oxides derived from nickel-aluminum hydrotalcite calcined at 450°C	**OX-102**
CoAl-oxides	Oxides derived from cobalt-aluminum hydrotalcite calcined at 450°C	**OX-103**
CuAl-oxides	Oxides derived from copper-aluminum hydrotalcite calcined at 450°C	**OX-104**
ZnCuAl-oxides	Oxides derived from zinc-copper-aluminum hydrotalcite calcined at 450°C	**OX-105**
ZnFeAl-oxides	Oxides derived from zinc-iron-aluminum hydrotalcite calcined at 450°C	**OX-106**
CoFeAl-oxides	Oxides derived from cobalt-iron-aluminum hydrotalcite calcined at 450°C	**OX-107**
NiZnAl-oxides	Oxides derived from nickel-zinc-aluminum hydrotalcite calcined at 450°C	**OX-108**
CoZnAl-oxides	Oxides derived from cobalt-zinc-aluminum hydrotalcite calcined at 450°C	**OX-109**

Calcined hydrotalcites retain their lamellar structure and when they're regenerated into water, they will recover their original structure (memory effect). The oxides obtained by the thermal decomposition of the hydrotalcite have a high surface area (about 150 m^2/g).
Calcined hydrotalcites are particularly suitable for the capture of gaseous species like CO_2, volatile acids; if they're employed in solution, they 'll be able to intercalate simultaneously a wide variety of substances into their interlayer region (scavengers).

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POLYMER ADDITIVES

The dispersion of a small amount of nanometric inorganic particles into organic polymers produces new composite materials with enhanced mechanical, liquid and gaseous barrier, thermal and flame retardant properties compared with the neat polymers.
All the additives can be modified through the intercalation of organic molecules with the aim of compatibilize the fillers with the polymeric matrices of interest and maximize the performances. The organic modification allows the increase of the interlayer distance of the materials creating an environment compatible with the polymer. This favours the diffusion of the polymer chains into the interlayered region during the mixing process of the additive.
The intercalation of organic molecules with special activities produces multifunctional additives able to confer new properties in the composites which are absent in the neat polymers (e.g. optical, catalytic, electric, magnetic, antioxidant, UV protection, anticorrosion).

Mechanical/thermal/barrier properties

Product	Description	CODE
MgAl-ATS	Hydrotalcite MgAl-aminotoluene sulfonate	**P-MA-101**
MgAl-ANS	Hydrotalcite MgAl-5-amino-1-naphthalenesulfonate	**P-MA-102**
MgAl-10-PAHPA	Hydrotalcite MgAl-10-hexadecanoyloxy-hexadecanoate	**P-MA-103**
MgAl-D2HHP	Hydrotalcite MgAl-bis(2-ethylhexyl)phosphate	**P-MA-104**
MgAl-2EHS	Hydrotalcite MgAl-2-ethylhexyl sulfate	**P-MA-105**
MgAl-Benzoate	Hydrotalcite MgAl-benzoate	**P-MA-106**
MgAl-PP	Hydrotalcite MgAl-phenylphosphonate	**P-MA-107**
MgAl-pSS	Hydrotalcite MgAl-styrene sulfonate	**P-MA-108**
MgAl-4B	Hydrotalcite MgAl-tetraborate	**P-MA-109**
MgAl-Laurate	Hydrotalcite MgAl-dodecanoate	**P-MA-110**
MgAl-Stearate	Hydrotalcite MgAl-stearate	**P-MA-111**
MgAl-Lactate	Hydrotalcite MgAl-lactate	**P-MA-112**
MgAl-Gluconate	Hydrotalcite MgAl-gluconate	**P-MA-113**
MgAl-Oleate	Hydrotalcite MgAl-oleate	**P-MA-114**
MgAl-P	Hydrotalcite MgAl-phosphate	**P-MA-115**
MgAl-AMP	Hydrotalcite MgAl-amino trimethylen triphosphonate	**P-MA-116**
MgAl-DS	Hydrotalcite MgAl-docecyl sulfate	**P-MA-117**
MgAl-DBS	Hydrotalcite MgAl-docecylbenzene sulfonate	**P-MA-118**
MgAl-6mbp	MgAl-[(hexylimino)dimethylen]bis phosphonate	**P-MA-119**
MgAl-12mbp	MgAl-[(dodecylimino)dimethylen]bis phosphonate	**P-MA-120**
MgAl-16mbp	MgAl-[(hexadecylimino)dimethylen]bis phosphonate	**P-MA-121**
MgAl-18mbp	MgAl-[(octadecylimino)dimethylen]bis phosphonate	**P-MA-122**

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Product	Description	CODE
ZnAl-ATS	Hydrotalcite ZnAl-aminotoluene sulfonate	P-ZA-101
ZnAl-ANS	Hydrotalcite ZnAl-5-amino-1-naphthalenesulfonate	P-ZA-102
ZnAl-10-PAHPA	Hydrotalcite ZnAl-10-hexadecanoyloxy-hexadecanoate	P-ZA-103
ZnAl-D2HHP	Hydrotalcite ZnAl-bis(2-ethylhexyl)phosphate	P-ZA-104
ZnAl-2EHS	Hydrotalcite ZnAl-2-ethylhexyl sulfate	P-ZA-105
ZnAl-Benzoate	Hydrotalcite ZnAl-benzoate	P-ZA-106
ZnAl-PP	Hydrotalcite ZnAl-phenylphosphonate	P-ZA-107
ZnAl-pSS	Hydrotalcite ZnAl-styrene sulfonate	P-ZA-108
ZnAl-4B	Hydrotalcite ZnAl-tetraborate	P-ZA-109
ZnAl-Laurate	Hydrotalcite ZnAl-dodecanoate	P-ZA-110
ZnAl-Stearate	Hydrotalcite ZnAl-stearate	P-ZA-111
ZnAl-Lactate	Hydrotalcite ZnAl-lactate	P-ZA-112
ZnAl-Gluconate	Hydrotalcite ZnAl-gluconate	P-ZA-113
ZnAl-Oleate	Hydrotalcite ZnAl-oleate	P-ZA-114
ZnAl-P	Hydrotalcite ZnAl-phosphate	P-ZA-115
ZnAl-AMP	Hydrotalcite ZnAl-amino trimethylen triphosphonate	P-ZA-116
ZnAl-DS	Hydrotalcite ZnAl-docecyl sulfate	P-ZA-117
ZnAl-DBS	Hydrotalcite ZnAl-docecylbenzene sulfonate	P-ZA-118
ZnAl-6mbp	ZnAl-[(hexaimino)dimethylen]bis phosphonate	P-ZA-119
ZnAl-12mbp	ZnAl-[(dodecylimino)dimethylen]bis phosphonate	P-ZA-120
ZnAl-16mbp	ZnAl-[(hexadecylimino)dimethylen]bis phosphonate	P-ZA-121
ZnAl-18mbp	ZnAl-[(octadecylimino)dimethylen]bis phosphonate	P-ZA-122

Product	Description	CODE
ZrP-NH4	Zirconium phosphate-ammonia	P-ZP-301
ZrP-HA	Zirconium phosphate-ethylamine	P-ZP-302
ZrP-PA	Zirconium phosphate-propylamine	P-ZP-303
ZrP-DDA	Zirconium phosphate-dodecylamine	P-ZP-304
ZrP-HDA	Zirconium phosphate-hexadecylamine	P-ZP-305
ZrP-ODA	Zirconium phosphate-octadecylamine	P-ZP-306
ZrP-Benz	Zirconium phosphate-benzylamine	P-ZP-307
ZrP-EDD	Zirconium phosphate-1,2-epoxy dodecane	P-ZP-308

Product	Description	CODE
Bentonite A	Bentonite-dimethyldihydrogenated tallow ammonium low	P-BE-01
Bentonite B	Bentonite-dimethylbenzylhydrogenated tallow ammonium	P-BE-02
Bentonite AS	Bentonite-dimethyldihydrogenated tallow ammonium high	P-BE-03

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Fillers for in situ polymerization

Product	Description	CODE
ZnAl-S-Acetate	Hydrotalcite ZnAl intercalated with styryl acetate	**S-ZA-201**
ZnAl-pSS	Hydrotalcite ZnAl intercalated with styrene sulfonate	**S-ZA-202**
ZnAl-Ferulate	Hydrotalcite ZnAl intercalated with ferulate	**S-ZA-203**
ZnAl-Acrylate	Hydrotalcite ZnAl intercalated with acrylate	**S-ZA-204**
ZnAl-Methacrylate	Hydrotalcite ZnAl intercalated with methacrylate	**S-ZA-205**
ZnAl-AMPS	Hydrotalcite ZnAl intercalated with 2-acrylamido-2-methyl-1-propanesulfonate	**S-ZA-206**
ZnAl-ACV	Hydrotalcite ZnAl intercalated with 4,4'-azobis(4-cyanovaleric acid)	**S-ZA-207**
ZnAl-Crotonate	Hydrotalcite ZnAl intercalated with crotonate	**S-ZA-208**
ZnAl-Fumarate	Hydrotalcite ZnAl intercalated with fumarate	**S-ZA-209**
ZnAl-Maleate	Hydrotalcite ZnAl intercalated with maleate	**S-ZA-210**
ZnAl-V-Acetate	Hydrotalcite ZnAl intercalated with vinyl acetate	**S-ZA-211**
ZnAl-Tigliate	Hydrotalcite ZnAl intercalated with tigliate	**S-ZA-212**
ZnAl-Oleate	Hydrotalcite ZnAl intercalated with oleate	**S-ZA-213**

Product	Description	CODE
MgAl-S-Acetate	Hydrotalcite MgAl intercalated with styryl acetate	**S-MA-101**
MgAl-pSS	Hydrotalcite MgAl intercalated with styrene sulfonate	**S-MA-102**
MgAl-Ferulate	Hydrotalcite MgAl intercalated with ferulate	**S-MA-103**
MgAl-Acrylate	Hydrotalcite MgAl intercalated with acrylate	**S-MA-104**
MgAl-Methacrylate	Hydrotalcite MgAl intercalated with methacrylate	**S-MA-105**
MgAl-AMPS	Hydrotalcite MgAl intercalated with 2-acrylamido-2-methyl-1-propanesulfonate	**S-MA-106**
MgAl-ACV	Hydrotalcite MgAl intercalated with 4,4'-azobis(4-cyanovaleric acid)	**S-MA-107**
MgAl-Crotonate	Hydrotalcite MgAl intercalated with crotonate	**S-MA-108**
MgAl-Fumarate	Hydrotalcite MgAl intercalated with fumarate	**S-MA-109**
MgAl-Maleate	Hydrotalcite MgAl intercalated with maleate	**S-MA-110**
MgAl-V-Acetate	Hydrotalcite MgAl intercalated with vinyl acetate	**S-MA-111**
MgAl-Tigliate	Hydrotalcite MgAl intercalated with tigliate	**S-MA-112**
MgAl-Oleate	Hydrotalcite MgAl intercalated with oleate	**S-MA-113**

Fillers for coatings/electrospinning/LBL deposition

Product description	CODE
Hydrotalcite dispersion in formamide	D-HT-01
Zirconium phosphate dispersion in water	D-ZP-01
Zirconium phosphate gel in ethanol	D-ZP-02
Zirconium phosphate gel in propanol	D-ZP-03
Zirconium phosphate gel in ethyl acetate	D-ZP-04
Zirconium phosphate gel in N,N-dimethylformamide	D-ZP-05
Zirconium phosphate gel in 1-methyl-2-pyrrolidone	D-ZP-06
Zirconium phosphate gel in tetrahydrofuran	D-ZP-07
Zirconium phosphate gel in chloroform	D-ZP-08
Zirconium phosphate gel in acetone	D-ZP-09

Dry blends

Layered fillers can be provided in dry blend powder combined with suitable additives in order to obtain synergistic effects for flame retardant properties.

Product	Description	CODE
HT-MDH	Hydrotalcite + $Mg(OH)_2$	B-HT-01
HT-ATH	Hydrotalcite + $Al(OH)_3$	B-HT-02
HT-Graph	Hydrotalcite + Graphene	B-HT-03
HT-E.Graph	Hydrotalcite + E. Graphite	B-HT-04
HT-Bent	Hydrotalcite + Bentonite	B-HT-05
HT-Phos	Hydrotalcite + Phosphinates	B-HT-06
HT-BO_3	Hydrotalcite + Borate	B-HT-07
HT-APP	Hydrotalcite + Ammonium Polyphosphate	B-HT-08
HT-MPP	Hydrotalcite + Melamine Polyphosphate	B-HT-09
ZrP-MDH	Zirconium phosphate + $Mg(OH)_2$	B-ZP-01
ZrP-ATH	Zirconium phosphate + $Al(OH)_3$	B-ZP-02
ZrP-Graph	Zirconium phosphate + Graphene	B-ZP-03
ZrP-E.Graph	Zirconium phosphate + E. Graphite	B-ZP-04
ZrP-Bent	Zirconium phosphate + Bentonite	B-ZP-05
ZrP-Phos	Zirconium phosphate + Phosphinates	B-ZP-06
ZrP-BO_3	Zirconium phosphate + Borate	B-ZP-07
ZrP-APP	Zirconium phosphate + Ammonium Polyphosphate	B-ZP-08
ZrP-MPP	Zirconium phosphate + Melamine Polyphosphate	B-ZP-09

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Active Fillers

UVA-UVB protectors

Product	Description	CODE
MgAl-BPS	MgAl-benzophenone sulfonate	AF-UV-101
MgAl-PBS	MgAl-2-phenylbenzimidazol-5-sulfonate	AF-UV-102
MgAl-pAB	MgAl-para amino benzoate	AF-UV-103
ZnAl-BPS	ZnAl-benzophenone sulfonate	AF-UV-104
ZnAl-PBS	ZnAl-2-phenylbenzimidazol-5-sulfonate	AF-UV-105
ZnAl-pAB	ZnAl-para amino benzoate	AF-UV-106

Antimicrobials/antioxidants

Product	Description	CODE
MgAl-Ascorbate	Hydrotalcite MgAl intercalated with ascorbate	AF-AM-101
MgAl-Benzoate	Hydrotalcite MgAl intercalated with benzoate	AF-AM-102
MgAl-Citrate	Hydrotalcite MgAl intercalated with citrate	AF-AM-103
MgAl-Dichlorobenzoate	Hydrotalcite MgAl intercalated with dichlorobenzoate	AF-AM-104
MgAl-Ferulate	Hydrotalcite MgAl intercalated with ferulate	AF-AM-105
MgAl-pOH-Benzoate	Hydrotalcite MgAl intercalated with p-hydroxy-benzoate	AF-AM-106
MgAl-Salicylate	Hydrotalcite MgAl intercalated with salicylate	AF-AM-107
MgAl-Sorbate	Hydrotalcite MgAl intercalated with sorbate	AF-AM-108
ZnAl-Ascorbate	Hydrotalcite ZnAl intercalated with ascorbate	AF-AM-201
ZnAl-Benzoate	Hydrotalcite ZnAl intercalated with benzoate	AF-AM-202
ZnAl-Citrate	Hydrotalcite ZnAl intercalated with citrate	AF-AM-203
ZnAl-Dichlorobenzoate	Hydrotalcite ZnAl intercalated with dichlorobenzoate	AF-AM-204
ZnAl-Ferulate	Hydrotalcite ZnAl intercalated with ferulate	AF-AM-205
ZnAl-pOH-Benzoate	Hydrotalcite ZnAl intercalated with p-hydroxy-benzoate	AF-AM-206
ZnAl-Salicylate	Hydrotalcite ZnAl intercalated with salicylate	AF-AM-207
ZnAl-Sorbate	Hydrotalcite ZnAl intercalated with sorbate	AF-AM-208
ZrP-Chlorhexidine	Zirconium phosphate/chlorhexidine	AF-AM-301

Anticorrosive

Product	Description	CODE
MgAl-VO_3	Hydrotalcite MgAl intercalated with metavanadate	AF-AC-101
MgAl-MBT	Hydrotalcite MgAl intercalated with 2-mercaptobenzothiazole	AF-AC-102
ZnAl-VO_3	Hydrotalcite ZnAl intercalated with metavanadate	AF-AC-201
ZnAl-MBT	Hydrotalcite ZnAl intercalated with 2-mercaptobenzothiazole	AF-AC-202

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HEALTH CARE

Hydrotalcites and lamellar solids are very good systems able to intercalate and vehiculate active ingredients of cosmetic/pharmaceutical interest. They improve the quality, the effectiveness and the safety of formulations both for topical and oral-buccal uses. The principal characteristics of these materials are:

- **no toxic and perfectly biocompatible even in oral use**
- **can contain active ingredients in high percentage (high loading)**
- **protect the intercalated molecules from photolysis, temperature, humidity and oxygen**
- **increase the stability of photosensitive molecules**
- **avoid damages derived from the contact with skin of degraded active ingredients**
- **increase the bioavailability (local and systemic) of active ingredients**
- **control, with kwown mechanism, the release of active ingredient and allow the realization of prolonged-release formulations**
- **increase the sun protection factor and safety of chemical sunscreens**
- **exert eudermic action, suitable for sensitive skins**
- **adsorbent/absorbent action (humidity, odors)**
- **improve rheological properties (extrudability, spreadability) of topic formulations and confer a pseudoplastic-thixotropic behaviour.**

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Cosmetic ingredients

Rheological agents

Product	Anion	CODE
MgAl-carbonate	Carbonate	HTC-101
MgAl-chloride	Chloride	HTC-102
MgAl-nitrate	Nitrate	HTC-103
ZnAl-carbonate	Carbonate	HTC-201
ZnAl-chloride	Chloride	HTC-202
ZnAl-nitrate	Nitrate	HTC-203

Product	Anion	CODE
MgFe-carbonate	Carbonate	HTC-301
MgFe-chloride	Chloride	HTC-302
MgFe-nitrate	Nitrate	HTC-303
ZnFeAl-carbonate	Carbonate	HTC-401
ZnFeAl-chloride	Chloride	HTC-402
ZnFeAl-nitrate	Nitrate	HTC-403

Antioxidants

Product	Guest	CODE
MgAl-citric	Citric acid	HTC-104
MgAl-ferulic	Ferulic acid	HTC-105
MgAl-phytic	Phytic acid	HTC-106
MgAl-lipoic	Lipoic acid	HTC-107
MgAl-cinnamic	Cinnamic acid	HTC-108
MgAl-vanillic	Vanillic acid	HTC-109
MgAl-ascorbic	Ascorbic acid	HTC-110
REVIFAST®	Resveratrol	HC-100

Product	Guest	CODE
ZnAl-citric	Citric acid	HTC-204
ZnAl-ferulic	Ferulic acid	HTC-205
ZnAl-phytic	Phytic acid	HTC-206
ZnAl-lipoic	Lipoic acid	HTC-207
ZnAl-cinnamic	Cinnamic acid	HTC-208
ZnAl-vanillic	Vanillic acid	HTC-209
ZnAl-ascorbic	Ascorbic acid	HTC-210

Keratolytics

Product	Guest	CODE
MgAl-salicylate	Salicylic acid	HTC-111

Product	Guest	CODE
ZnAl-salicylate	Salicylic acid	HTC-211

Antimicrobial/preservatives

Product	Guest	CODE
MgAl-sorbic	Sorbic acid	HTC-112
MgAl-undecylen	Undecylenic	HTC-113

Product	Guest	CODE
ZnAl-sorbic	Sorbic acid	HTC-212
ZnAl-undecylen	Undecylenic	HTC-213

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Antiacne

Product	Guest	CODE	Product	Guest	CODE
MgAl-azelate	Azelaic acid	HTC-114	ZnAl-azelate	Azelaic acid	HTC-214
MgAl-retinoate	Retinoic acid	HTC-115	ZnAl-retinoate	Retinoic acid	HTC-215

Skin brightening

Product	Guest	CODE	Product	Guest	CODE
MgAl-kojic	Kojic acid	HTC-116	ZnAl-kojic	Kojic acid	HTC-216

Deodorant/absorbers

Product	Guest	CODE	Product	Guest	CODE
MgAl-ricinoleate	Ricinoleic ac.	HTC-117	ZnAl-ricinoleate	Ricinoleic ac.	HTC-217
Zn-ricinoleate	Ricinoleic ac.	HNC-101	Zn-PCA	Zinc PCA	HNC-102

Exfoliants

Product	Guest	CODE	Product	Guest	CODE
MgAl-glycolic	Glycolic acid	HTC-118	ZnAl-glycolic	Glycolic acid	HTC-218
MgAl-mandelic	Mandelic acid	HTC-119	ZnAl-mandelic	Mandelic acid	HTC-219
MgAl-pyruvic	Pyruvic acid	HTC-120	ZnAl-pyruvic	Pyruvic acid	HTC-220

Gelling agents for vegetable oils

Product	Guest	CODE	Product	Guest	CODE
MgAl-oleate	Oleic acid	HTC-121	ZnAl-oleate	Oleic acid	HTC-221
MgAl-stearate	Stearic acid	HTC-122	ZnAl-stearate	Stearic acid	HTC-222

Lenitives

Product	Guest	CODE	Product	Guest	CODE
MgAl-glycyrrhetic	Glycyrrhetic acid	HTC-123	ZnAl-glycyrrhetic	Glycyrrhetic acid	HTC-223

Sunscreens

Product	Guest	CODE	Product	Guest	CODE
MgAl-BHP	Sulisobenzone	HTC-124	ZnAl-BHP	Sulisobenzone	HTC-224
MgAl-PBS	Ensulizone	HTC-125	ZnAl-PBS	Ensulizone	HTC-225
MgAl-PBSA	Bisdisulizole	HTC-126	ZnAl-PBSA	Bisdisulizole	HTC-226

Prolabin&Tefarm
Polymer Additives, Cosmetic Ingredients, Catalysts

Pharmaceutical Actives

Non Steroideal Anti-Inflammatory Drugs (NSAIDs)

Product	Guest	CODE	Product	Guest	CODE
MgAl-diclofenac	Diclofenac	**HF-101**	**ZnAl-diclofenac**	Diclofenac	**HF-201**
MgAl-ibuprofen	Ibuprofen	**HF-102**	**ZnAl-ibuprofen**	Ibuprofen	**HF-202**
MgAl-ketoprofen	Ketoprofen	**HF-103**	**ZnAl-ketoprofen**	Ketoprofen	**HF-203**
MgAl-indometac	Indomethacin	**HF-104**	**ZnAl-indometac**	Indomethacin	**HF-204**
MgAl-naproxen	Naproxen	**HF-105**	**ZnAl-naproxen**	Naproxen	**HF-205**
MgAl-meclofen	Meclofenamic	**HF-106**	**ZnAl-meclofen**	Meclofenamic	**HF-206**
MgAl-tolmentin	Tolmentin	**HF-107**	**ZnAl-tolmentin**	Tolmentin	**HF-207**

Antibiotics

Product	Description	CODE
MgAl-Caps	Hydrotalcite MgAl intercalated with chloramphenicol succinate	**HF-108**
MgAl-Pmp	Hydrotalcite MgAl intercalated with phenoxymethylpenicillin	**HF-109**
MgAl-Nal	Hydrotalcite MgAl intercalated with nalidixic acid	**HF-110**
MgAl-Amp	Hydrotalcite MgAl intercalated with ampicillin	**HF-111**
MgAl-AmB	Hydrotalcite MgAl intercalated with amphotericin B	**HF-112**
MgAl-Cfx	Hydrotalcite MgAl intercalated with ciprofloxacin	**HF-113**
MgAl-Nfx	Hydrotalcite MgAl intercalated with norfloxacin	**HF-114**
MgAl-Cfz	Hydrotalcite MgAl intercalated with cefazolin	**HF-115**
MgAl-Oxa	Hydrotalcite MgAl intercalated with oxacillin	**HF-116**
ZnAl-Caps	Hydrotalcite ZnAl intercalated with chloramphenicol succinate	**HF-208**
ZnAl-Pmp	Hydrotalcite ZnAl intercalated with phenoxymethylpenicillin	**HF-209**
ZnAl-Nal	Hydrotacite ZnAl intercalated with nalidixic acid	**HF-210**
ZnAl-Amp	Hydrotalcite ZnAl intercalated with ampicillin	**HF-211**
ZnAl-AmB	Hydrotalcite ZnAl intercalated with amphotericin B	**HF-212**
ZnAl-Cfx	Hydrotalcite ZnAl intercalated with ciprofloxacin	**HF-213**
ZnAl-Nfx	Hydrotalcite ZnAl intercalated with norfloxacin	**HF-214**
ZnAl-Cfz	Hydrotalcite ZnAl intercalated with cefazolin	**HF-215**
ZnAl-Oxa	Hydrotalcite ZnAl intercalated with oxacillin	**HF-216**
ZrP-Gtm	Zirconium phosphate/gentamicin	**HF-301**
ZrP-Neo	Zirconium phosphate/neomycin	**HF-302**
ZrP-Stp	Zirconium phosphate/streptomycin	**HF-303**

4. HETEROGENEOUS CATALYSTS

Alcohols reforming

Product	Description	Molar ratio	CODE
CoAl-CO_3	CoAl Hydrotalcite with carbonate anion	Co/Al=2	**C-HT-101**
CoZnAl-CO_3	CoZnAl Hydrotalcite with carbonate anion	(Co+Zn)/Al=2	**C-HT-102**
CoNiZnAl-CO_3	CoNiZnAl Hydrotalcite with carbonate anion	(Co+Ni+Zn)/Al=2	**C-HT-103**
CuZnAl-CO_3	CuZnAl Hydrotalcite with carbonate anion	(Cu+Zn)/Al=2	**C-HT-104**
NiAl-CO_3	NiAl Hydrotalcite with carbonate anion	Ni/Al=2	**C-HT-105**
NiCoAl-CO_3	NiCoAl Hydrotalcite with carbonate anion	(Ni+Co)/Al=2	**C-HT-106**
NiMgAl-CO_3	NiMgAl Hydrotalcite with carbonate anion	(Ni+Mg)/Al=2	**C-HT-107**
NiZnAl-CO_3	NiZnAl Hydrotalcite with carbonate anion	(Ni + Zn)/Al=2	**C-HT-108**

Acid/base

Product	Description	Function	CODE
Zirco-P/Me	Zirconium phosphate/methanephosphonate	Acid	**C-ZP-301**
Zirco-K	Potassium zirconium phosphate	Basic	**C-ZP-302**
Zirco-Me/SPh	Zirconium methanephosphonate/sulfophenylphosphonate	Acid	**C-ZP-303**
Zirco-P/Ph	Zirconium phosphate/phenylphosphonate	Acid	**C-ZP-304**
Zirco-P/SPh	Zirconium phosphate/sulfophenylphosphonate	Acid	**C-ZP-305**

Fisher Tropsch

Product	Description	Molar ratio	CODE
CoAl-CO_3	CoAl Hydrotalcite with carbonate anion	Co/Al=2	**C-FT-101**
CoFeAl-CO_3	CoFeAl Hydrotalcite with carbonate anion	(Co+Fe)/Al= 2	**C-FT-102**
CoFe-CO_3	CoFe Hydrotalcite with carbonate anion	Co/Fe= 2	**C-FT-103**
CoZnAl-CO_3	CoZnAl Hydrotalcite with carbonate anion	(Co+Zn)/Al= 2	**C-FT-104**

Magnetic properties

The introduction of particula metals in the brucitic structure confers magnetic properties to the hydrotalcites. By changing the composition and the nature of metals it is possible to obtain ferromagnetic and/or antiferromagnetic interactions in the solids that hope their use for the production of credit cards, ribbons and other magnetic devices.

Product	Description	Molar ratio	CODE
$CoFe\text{-}CO_3$	Co-Fe hydrotalcite with carbonate anion	Co/Fe = 2	**C-MP-101**
$FeAl\text{-}CO_3$	Fe-Al hydrotalcite with carbonate anion	Fe/Al = 2	**C-MP-102**
$NiAl\text{-}CO_3$	Ni-Al hydrotalcite with carbonate anion	Ni/Al = 2	**C-MP-103**
$NiCo\text{-}CO_3$	Ni-Co hydrotalcite with carbonate anion	Ni/Co = 2	**C-MP-104**
$NiCr\text{-}CO_3$	Ni-Cr hydrotalcite with carbonate anion	Ni/Cr = 2	**C-MP-105**
$NiFe\text{-}CO_3$	Ni-Fe hydrotalcite with carbonate anion	Ni/Fe = 2	**C-MP-106**
$NiMn\text{-}CO_3$	Ni-Mn hydrotalcite with carbonate anion	Ni/Mn= 2	**C-MP-107**

Protonic conductors

The compound $Zr(O_3POH)(O_3PC_6H_4SO_3H)$ is a zirconium phosphonate with an interesting organic derivative in which the presence of electronegative group $-PO_3$ attached to the benzenic ring confers to the $-SO_3H$ group superacid properties (hammet function = -5). The hydrophilicity of this group facilitates the formation of colloidal dispersion of this compound in water. This phosphonate has a high proton conductivity (0.16 S/cm) that together with their special characteristics makes this material one of the best solid state conductor available in the market.

Product description	a.r.*	δ *	(Å)#	CODE
α-Zirconium sulfophenylphosphonate $\alpha\text{-}Zr(O_3PCH_3)_2\text{-}x(O_3PC_6H_4SO_3H)$	10^1-10^3	$1.6*10^{-2}$	19	**C-PC-300**

*** Aspect ratio m^2/g. ** δ Conducibility $S*Cm^{-1}$ at 100°C and 90% Relative Humidity**

Dyes

Product	Guest	CODE	Product	Guest	CODE
MgAl-cresol	Cresol red	**C-DY-100**	**ZnAl-cresol**	Cresol red	**C-DY-200**
MgAl-E101	E101	**C-DY-101**	**ZnAl-E101**	E101	**C-DY-201**
MgAl-E102	E102	**C-DY-102**	**ZnAl-E102**	E102	**C-DY-202**
MgAl-E103	E103	**C-DY-103**	**ZnAl-E103**	E103	**C-DY-203**
MgAl-E120	E120	**C-DY-104**	**ZnAl-E120**	E120	**C-DY-204**
MgAl-E122	E122	**C-DY-105**	**ZnAl-E122**	E122	**C-DY-205**
MgAl-E127	E127	**C-DY-106**	**ZnAl-E127**	E127	**C-DY-206**
MgAl-E131	E131	**C-DY-107**	**ZnAl-E131**	E131	**C-DY-207**
MgAl-E133	E133	**C-DY-108**	**ZnAl-E133**	E133	**C-DY-208**
MgAl-E160b	E160b	**C-DY-109**	**ZnAl-E160b**	E160b	**C-DY-209**
MgAl-phenolph	Phenolphtalein	**C-DY-110**	**ZnAl-phenolph**	Phenolphtalein	**C-DY-210**
MgAl-congo	Congo red	**C-DY-111**	**ZnAl-congo**	Congo red	**C-DY-211**
MgAl-chl phen	Chlor phenol	**C-DY-112**	**ZnAl-chl phen**	Chlor phenol	**C-DY-212**
MgAl-meth red	Methyl red	**C-DY-113**	**ZnAl-meth red**	Methyl red	**C-DY-213**
MgAl-phen red	Phenol red	**C-DY-114**	**ZnAl-phen red**	Phenol red	**C-DY-214**
MgAl-bromcres	Bromocresol	**C-DY-115**	**ZnAl-bromcres**	Bromocresol	**C-DY-215**
MgAl-meth or	Methyl orange	**C-DY-116**	**ZnAl-meth or**	Methyl orange	**C-DY-216**
MgAl-rhodamin	Rhodamin	**C-DY-117**	**ZnAl-rhodamin**	Rhodamin	**C-DY-217**

Porphyrins

The introduction of particula metals in the brucitic structure confers magnetic properties to the hydrotalcites. By changing the composition and the nature of metals it's possible to obtain ferromagnetic and/or antiferromagnetic interactions in the solids that hope their use for the production of credit cards, ribbons and other magnetic devices.

Product	Description	CODE
ZnAl-Por	Hydrotalcite ZnAl intercalated with porphyrin	**C-P-201**
MgAl-Por	Hydrotalcite MgAl intercalated with porphyrin	**C-P-101**
ZrP-Por	Zirconium phosphate/porphyrin	**C-P-301**

Prolabin&Tefarm
Polymer Additives, Cosmetic Ingredients, Catalysts

Research, innovation and the technological transfer of products and solutions, to make our customers leaders in their market.

Prolabin & Tefarm S.r.l.

Via dell'Acciaio 9, 06134 Perugia, Italy

Phone +39 075 6910472
Fax +39 075 5919493

info@prolabintefarm.com
www.prolabintefarm.com

Contacts

Commercial Office
roberto.spogli@prolabintefarm.com
+39 339 5326995

R&D Department
michele.sisani@prolabintefarm.com
+39 338 5903126