

Pastes, creams and powders



Tinning pastes and solder creams are homogenous blends of metallic powders, fluxes and binding agents. This "all-in-one" concept saves time and allows for the precise measurement of the quantity of solder to apply. They are used in areas such as silverware, watches, eyewear, semi-conductors, aeronautics, rail, the automotive industry, various electrical and mechanical assemblies, and the building industry. These products complement the METACONCEPT Group's range of preforms and solid or cored wires.

Metallic powders are generally designed for the manufacture of solder pastes or creams. In addition to choosing a high quality powder suited to the intended application, an appropriate composition of the alloy must be selected in accordance with the intended brazing process.

Have you defined the type of application? [Contact us](#). Our technical staff will be happy to assist you in choosing the most suitable pastes or creams.

Characteristics

Tinning or soldering pastes

Tinning and solder pastes are used as part of brazing procedures requiring an active cored wire and which are followed by cleaning in order to remove corrosive residues. This table shows the most commonly used alloys in the area of soft soldering:

Designation	Composition	Solidus/ Liquidus	Comments
Tinning or solder pastes 30% Sn	30% tin, lead balance	183°C - 250°C	Steel, copper assemblies and copper and brass alloys
Tinning or solder pastes 40% Sn	40% tin, lead balance	183°C - 245°C	Steel, copper assemblies and copper and brass alloys
Tinning or solder pastes 60% Sn	60% tin, lead balance	183°C - 190°C	Steel, copper assemblies and copper and brass alloys
Tinning or solder pastes 97% Sn - 3% Cu	97% tin - 3% copper*	230°C - 250°C	All metals except aluminium - Lead-free*
Tinning or solder pastes 100% Sn	100% tin*	232°C	All metals except aluminium and stainless steel - Lead-free*

(*) Lead-free alloys - European standard no. 2000 / 53 / CE

Standard solder paints are available:

- In 250 g, 500 g and 1 kg plastic pots
- Or in 5 kg, 10 kg and 25 kg cans

Solder creams

Solder creams are designed for the more accurate assembly of parts that do not require such active fluxing. Indeed, the choice of powder, its granulometry and the quality of the stripper means that the cream has a very precise action. This product's syringe or cartridge packaging facilitates its precise application and optimises the quality of the joint.

This table shows the most commonly used alloys for solder creams in the area of soft soldering:

Designation	Composition	Solidus / Liquidus	Comments
Sn42 - Bi58	42% tin - 52% bismuth	138°C	Assemblies made from steel, copper, tin and their alloys, brass, bronze, nickel, certain stainless steels - Lead-free*
Sn63 – Pb37	63% tin - 52% lead balance	183°C	Assemblies made from steel, copper and their alloys, brass, bronze, nickel, certain stainless steels
Sn62 – Pb36 – Ag2	62% tin - 2% silver - lead balance	178°C - 190°C	Assemblies made from steel, copper and their alloys, brass, bronze, nickel, certain stainless steels
Sn96 - Ag4	96% tin - 4% silver - lead balance	221°C	Assemblies made from steel, copper and their alloys, brass, bronze, nickel, silver and silver alloys - Lead-free*
Sn100	100% tin*	232°C	Assemblies made from steel, copper and their alloys, brass, bronze, nickel - Lead-free*

(*) Lead-free alloys - European standard no. 2000 / 53 / CE

The creams are characterised by a flux dedicated to the intended application, unlike pastes which have a very active universal flux. Our range of creams includes 7 different fluxes each with a different type of activation.

METACONCEPT flux

Item no.	Classification	Applications	Procedure	Alloy Sn / Pb	Lead-free alloy	Low T° alloy
SRS1 RMA	Halogen-free resins	Tin, lead, copper, silver and their perfectly clean alloys	D/P	X	X	X
SRS1 RA	Halogen resins < 0.2%	Electronics and connectivity applications	D/P	X	X	X
MTC4 RMA	Halogen resins < 0.1%	Tin, lead, copper, silver and their slightly oxidised alloys, mechanical and electrical applications	P	X	X	NC
CSC5 WS	Organic, water soluble, activated	Electronic applications, can be washed in water: to be cleaned, screen printing	P	X	X	NC
BWP WS	Organic, water soluble Highly activated	Plumbing and mechanical applications Tin, copper, silver, zinc, iron, nickel, stainless steel and their even slightly oxidised alloys	D/M	NC	X	NC
MTC5 RA	Halogen resins < 0.25%	Tin, lead, copper, silver and their slightly oxidised alloys, mechanical and electrical applications	P	X	X	NC
TTN	Halogen-free resins	High temperature, electronics, connectivity applications	D/P	NC	NC	NC

D = dispensing/syringe

P = stencil/screen printing

M = manual

Cream storage: 12 months in a refrigerator at 10°C +/- 5°C.

Normal temperature of use: 20°C to 25°C

Extreme peak in temperature: 2 hrs at 45°C

Powders

Metallic powders are generally designed for the manufacture of solder pastes or creams. Powders with a particle size greater than or equal to 75 microns are used for the production of tinning or solder pastes. Powders with a particle size of less than 75 microns are used for the production of solder creams. This table shows the most commonly used alloys in the area of soft soldering: Make sure that you store the powder in a cool and dry place. A prolonged stay in a wet environment could lead to "caking".

Standard alloys:	Solidus / Liquidus	Standard lead-free alloys*	Solidus / Liquidus
Sn30 - Pb70	183°C - 255°C	Sn42 - Bi58	138°C
Sn50 - Pb50	183°C - 215°C	Sn96 - Ag4	221°C
Sn60 - Pb40	183°C - 190°C	Sn99 - Cu1	227°C
Sn63 - Pb37	183°C	Sn 100	232°C

(*) Lead-free alloys - European standard no. 2000 / 53 / CE

These tables show the most commonly used alloys in the area of soft soldering: For other alloys, [contact us](#).

Applications

Tinning or soldering pastes

All applications:

- Electricity
- Plumbing, sanitary installations, heating
- Electromechanics

See specific applications in the table below.

100% tinning paste has been specially designed for cooking- and food-related tinning.

As the flux is zinc chloride based and contains additives that are flammable when the soldering temperature is too high, it is necessary to take all usage precautions when heating with the torch.

Solder creams

The creams can be used in all industrial and electronics sectors requiring simple and safe, precise and high performance soft soldering.

Formulations incorporating zinc chloride fluxes, lead-free and cadmium-free powders, meeting occupational safety and environmental regulations.

Implementation

The product safety information sheet below is available upon request from the METACONCEPT Group.

Tinning pastes are designed to be applied via dipping, baths, with brushes or using syringes fitted with large diameter needles. Then, heat it in the furnace or with a torch to melt the alloy. Thanks to the simultaneous action of the heat and the flux the paint distributes evenly resulting in a watertight assembly with satisfactory mechanical strength.

As regards solder creams, they can be applied manually or mechanically either with a syringe or distributed using a screen printing screen. The "refusion" is achieved using a flame, a furnace, via induction or electrical resistance.

Precautions for use

To prevent burns caused by the molten metal, it is advisable to wear a protective apron, shoes, gloves, helmet and glasses.

Do not smoke at the workstation.

The workstation must be well ventilated.

Wash your hands when leaving the workstation.

Comments:

Always use a flux suited to the intended use. [Contact our technical department](#) to ascertain which product is most suited to your application.

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