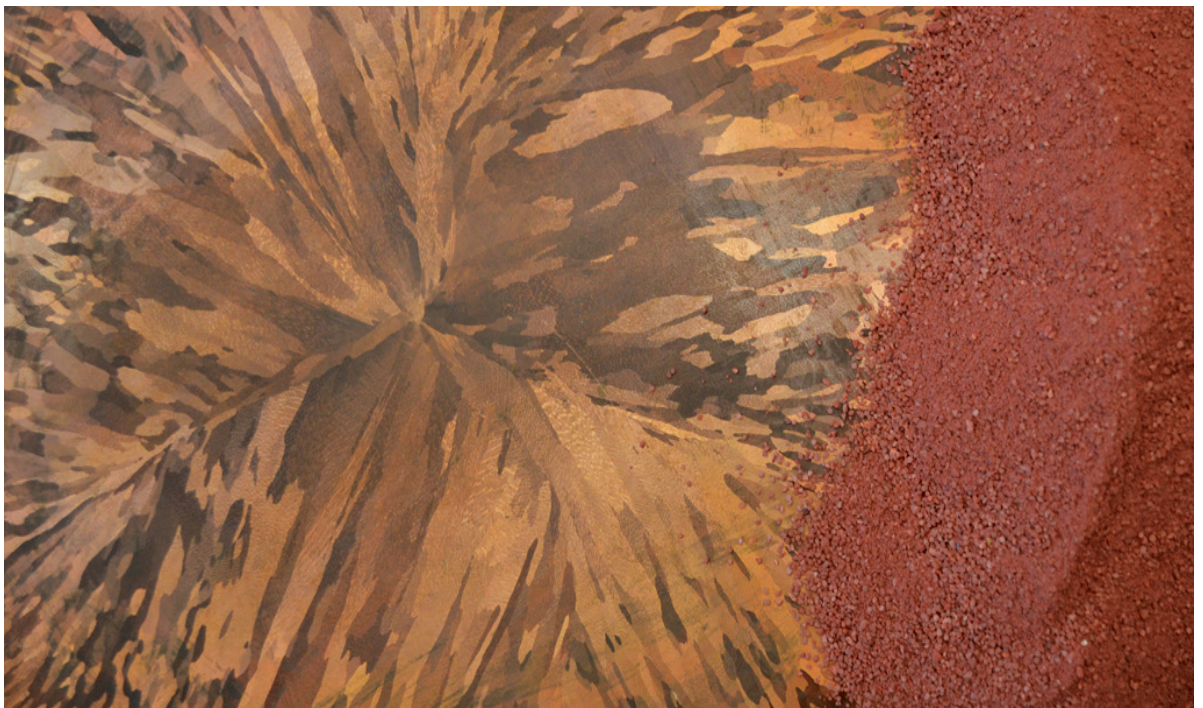


SCHÄFER

METALLURGIE GmbH

CATALOGUE HEAVY METAL



Application of products for the treatment of:

- copper
- bronze
- brass
- zinc alloys

Application Range:
gravity die-, sand-, fine- and
continuous casting

Company Profile

The company **SCHÄFER Metallurgie GmbH** was founded in 1919 and produces foundry auxiliary agents for the light and heavy metal sector.

Our products are used in non-ferrous-foundries all over the world. They optimize the metallurgy of the metal melts, enable the production of high quality casting parts by improving the metal treatment process as well as maintain the functionality and lifespan of furnaces.

We intend to facilitate the work of foundry men together with our world-wide representations by superior products and top service.

Our Commitment to Quality

Quality has a long tradition at the company **SCHÄFER Metallurgie GmbH**. For more than 100 years our customers have relied on the consistently high quality of SCHÄFER products for the treatment of metal melts.

To meet the growing product requirements, quality assurance is considered along the entire value chain. The careful selection of suppliers as well as the responsible purchase of raw and starting materials is the basis of our quality products. During the production process we rely on qualified and trained employees, structured workflows and state-of-the-art facilities.

Since 2000 our quality management is successfully certified in accordance with ISO 9001 and it reflects the norm's principle of a continual improvement. We develop our products further so that we are able to adapt and to react quickly to changes of market requirements. Product innovations are also one of our core competencies.



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Our Strengths:

- experience of more than 100 years in the foundry market
- customized, unique service
- research and development: product innovations and constant improvement of the existing product range
- development of special products to solve customer-specific problems
- certification in accordance with ISO 9001 and 14001

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We are specialized in:

- removal of ceramic impurities
- removal of metallic interfering elements
- metallurgical influence of the melt by grain refinement
- coatings for the gravity die casting
- special products according to your company's requirements

Customer Orientation

Our services focus on the needs, interests and individual requirements of every single customer. This serves as a basis for all business relationships of the company **SCHÄFER Metallurgie GmbH**.

Customers of our company are representations, resellers as well as companies which use our products for the treatment of metal melts in their foundries.

We exactly investigate the needs and requirements of our customers in every single case (order) to avoid queries and complaints due to insufficient information.

Our customers require:

- reliability (correct and on time delivery)
- flexibility (meeting the customers' special needs and requirements)
- consultant (competent product information)
- quality (products of high quality)

Furthermore, the customers of our company expect that we steadily watch the market and keep up with the technological progress, besides meeting their needs and requirements. Thus, we are able to forward the gained knowledge to them by integrating it in our consulting services.

Our Quality principles are:

- reliability towards our customers
- marketing security (products of high quality)
- market influence
- flexibility, the ability to adapt and to react quickly to changes of market requirements (proximity to the market)
- intensive support of our customers and continuous communication with them



Sustainability

The company **SCHÄFER Metallurgie GmbH** is obligated to protect the environment and the employees to a great extent due to its handling with chemicals. This also has economic reasons, as ecology is not contrary to economy at our company. The executive management focuses on a continuous improvement of the environment protection and industrial safety while increasing the quality of our products and services.

We systematically integrate environmental protection into our organisational and operational processes and since 2007 we are successfully certified in accordance with ISO 14001. All of our products and services are produced respectively performed subject to all valid laws, standards, regulations and governmental permissions.

Beyond that, we aim to develop and offer products that support foundries in keeping the environmental impact of their production as low as possible. In the course of these considerations we also discover potentials how environmental impacts of our company can be reduced continuously.

Our production facilities are built and operated state-of-the-art. This includes the maintenance of special safety standards regarding technical and organisational needs, because safety of facilities implies environment as well as employee protection.

Important aspects to ensure our standards:

- continuous control of machines and facilities
- training of employees
- optimising our workflows
- safe handling and appropriate storage of chemical substances



PROBAT - FLUSS REDOX

Highly efficient refining flux

for all copper alloys; particularly suitable for the treatment of copper alloys with heavily oxidizing alloy elements (e. g. aluminium bronze)

Notes on Technology:

Cast aluminium bronzes and cast multi-component aluminium bronzes have the tendency to a high oxidation and gas absorption in the liquid state. This leads to solid ceramic inclusions and pores or shrinkage holes. Adherences, which are difficult to remove, deposit on the furnace walls. Furthermore, a metal-rich, heavy slag is formed on the bath surface. Only the use of highly active refining fluxes makes it possible to remove the oxides from the melt and to reduce the metal portion in the slag.

Application Range:

PROBAT-FLUSS REDOX is a highly effective covering and cleansing agent for all copper alloys, e. g. cast multi-component aluminium bronzes according to DIN 1714 and Al-containing alloys.

Quality Characteristics:

- removes oxides from the metal melt
- reduces the gas absorption
- produces a low-metal slag
- improves the technological and mechanical properties
- improves the flowability and casting behaviour
- minimizes the environmental impact

Addition Rate:

0.05 - 0.2 % level of impurities

Product Application:

Apply PROBAT-FLUSS REDOX onto the metal heel and add the used material onto it. After the melting process, the slag can be additionally treated with the refining flux.

Typical Properties:

Appearance: white powder

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

25 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

PROBAT - FLUSS EXTRA NS

Cleaning, covering and melting agent
for Cu-containing alloys

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. This leads to solidly ceramic inclusions as well as pores or shrinkage holes. Adherences, which are difficult to remove, sediment on the furnace walls and high-metal slag is formed on the bath surface. Only the application of highly active refining fluxes enables to remove the oxides from the melt and to reduce the share of metal in the slag. Sulphur as an interfering element also can lead to hard inclusions.

Application Range:

Universally applicable melting agent for cleaning, covering and melting of high concentrated copper alloys, particularly red brass, nickel silver, cupronickel and brass.

Quality Characteristics:

- low-metal dross
- reduces incrustations
- low melting point and, hence, hermetic cover of the melt
- highly environmental-friendly compared to charcoal and charcoal-containing products
- improvement of the material properties

Addition Rate:

0.05 - 0.2 %level of impurities

Product Application:

Use only dry material and tools. A partial quantity can be already added during the melting process so that a hermetic cover can be formed at rising bath surface.

After the melt down, however, before the slag becomes thin fluid, add additional PROBAT-FLUSS EXTRA NS.

The material is to be stirred thoroughly into the slag and removed immediately before pouring. The addition rate depends on the charge material's degree of impurity and on refractory lining. PROBAT-FLUSS EXTRA NS is basic.

Typical Properties:

Appearance: light grey powder

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

20 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Keep container dry and tightly closed. If stored properly the shelf life is at least 6 months.

PROBAT - FLUSS EXTRA NS

PROBAT - FLUSS EXTRA

Cleaning, covering and melting agent
for heavy metals

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. This leads to solidly ceramic inclusions as well as pores or shrinkage holes. Adherences, which are difficult to remove, sediment on the furnace walls and high-metal slag is formed on the bath surface. Only the application of highly active refining fluxes enables to remove the oxides from the melt and to reduce the share of metal in the slag.

Application Range:

Universally applicable melting agent for cleaning, covering and melting of copper alloys, particularly bronze, brass, red brass and so on.

Quality Characteristics:

- low-metal dross
- neutral towards refractory materials
- low melting point and, hence, hermetic cover of the melt
- highly environmental-friendly compared to charcoal and charcoal-containing products
- improvement of the material properties
- degassing effect

Addition Rate:

0.05 - 0.2 %level of impurities

Product Application:

The material can already be added during the melting process so that a hermetic cover can be formed at rising bath surface.

After the melt-down, however, before the slag becomes thin fluid, add additional PROBAT-FLUSS EXTRA. The material is to be stirred thoroughly into the dross and removed immediately before casting.

Typical Properties:

Appearance: red powder

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

25 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

PROBAT - FLUSS EXTRA SE

**Desulphurization agent
for copper alloys**

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. This leads to solidly ceramic inclusions as well as pores or shrinkage holes. Adherences, which are difficult to remove, sediment on the furnace walls and high-metal slag is formed on the bath surface. Only the application of highly active refining fluxes enables to remove the oxides from the melt and to reduce the share of metal in the slag. Sulphur as an interfering element also can lead to hard inclusions.

Application Range:

Applicable for all copper alloys to reduce the sulphur content, particularly for sulphuric scrap.

Quality Characteristics:

- reduction of the sulphur content
- cleaning of the melt
- improvement of the material properties

Addition Rate:

0.05 - 0.2 %level of impurities

Product Application:

Use only dry material and tools. A partial quantity is melt with the feedstock. After the melt down, additional material can be added and stirred into the melt with a tool, if required.

In the event of high sulphur content, the melt can be desulphurized repeatedly by adding PROBAT-FLUSS EXTRA SE into the pouring ladle or the launder.

Typical Properties:

Appearance: black powder

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

25 kg paper backs, 3-fold with plastics-lining

Storage and Shelf Life:

Keep container dry and tightly closed. If stored properly the shelf life is at least 6 months.

PROBAT - FLUSS EXTRA SE

ALUFIX

**Aluminium remover, cleansing and covering agent
for copper alloys**

Notes on Technology:

Aluminium is only welcomed in a few copper alloys as a part of the alloy. The maximum tolerance limit for most brass alloys and all copper-tin alloys is 0.01 %. Also this maximum limit should, if possible, not be reached. Aluminium is entrained into copper alloys very often due to the aluminium containing recycled scrap of special alloys.

An indication for this is the formation of suddenly occurring single clear spots on the oxidizing surface which otherwise solidifies full of fissures. The fewer such clear spots are present, the less is the amount of aluminium content. The mechanical properties are reduced essentially by aluminium and the entrapped oxide skins will lead to porosity.

Application Range:

ALUFIX is suitable for all copper and copper alloys to reduce the share of aluminium content.

Quality Characteristics:

- removal of aluminium out of the melt by a simultaneously cleaning and covering of the melt
- has also proved to be very effective for alloys, which don't contain any aluminium, as cleansing agent
- improvement of the mechanical properties

Addition Rate:

It is difficult to determine in advance the correct dosage of ALUFIX, because of the great differences of aluminium content. Generally speaking 0.2 - 0.5 % are sufficient to remove even traces of aluminium from the melt. If, however, aluminium is supposed to be introduced already at the start of charging, then 0.05 - 0.2 % ALUFIX should be added to the feedstock.

Product Application:

After completion of the melting process a test block is taken to verify whether there is still aluminium in the melt. If aluminium is still contained, an additional quantity of 0.5 % of ALUFIX is to be stirred thoroughly into the melt. In the event of aluminium containing scrap, the product is to be melted together with the raw material. This treatment should be carried out for a period of 10 - 15 minutes. Then the aluminium test is to be repeated. If our product is used for cleaning aluminium-free copper alloys, then the dosage should be 1 - 2 % of ALUFIX which should be fed to the charge in 2 - 3 partial quantities or eventually by the use of an immersion bell. Care is to be taken that the product is thoroughly stirred into the melt.

The material is particularly suitable for rotary furnaces, whereby the addition rate is depending on the aluminium content as already described. One half of the material is to be added during the charging. The second half is to be added onto the melt surface after the maximum temperature is reached and then it is to be thoroughly stirred with the slag.

Typical Properties:

Appearance: red powder

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

25 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

PROBAT - FLUSS EXTRA CARBON N

**Covering agent
for copper and copper alloys (carbon carrier)**

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. This leads to solidly ceramic inclusions as well as pores or shrinkage holes. Adherences, which are difficult to remove, sediment on the furnace walls and high-metal slag is formed on the bath surface. To avoid oxygen feed, an effective covering of the melt, supported by reducing conditions, has proved to be successful.

Application Range:

PROBAT-FLUSS EXTRA CARBON N is suitable for the covering of copper and copper alloy melts. A reducing atmosphere is obtained and thus, the melt is prevented from oxidizing at simultaneous deoxidizing effect.

Quality Characteristics:

- consists of approximately 90 % carbon
- no humidity
- low content of ash
- uniform grain size (1 - 5 mm)
- deoxidizing portions
- lower sulphur content than in commercial charcoal
- has a slightly higher flash point than PROBAT-FLUSS EXTRA CARBON S

Addition Rate:

The surface of the melt should be covered with an approximately 1 - 2 cm thick layer of PROBAT-FLUSS EXTRA CARBON N.

Product Application:

PROBAT-FLUSS EXTRA CARBON N is put into the furnace together with the used material during the melting process. Thus, an oxidation of the metal is prevented and the deoxidizing effect of the oxides is diminished. If the alloy produces a lot of slag, incrustations are prevented.

After the melting process, add PROBAT-FLUSS EXTRA CARBON N until a close cover is obtained. Due to the low burn out, a reducing effect is obtained and the oxidation of the melt prevented while a deoxidizing effect is obtained by deoxidizing elements. By brass or nickel silver alloys the melt and slag must be treated with PROBAT-FLUSS EXTRA or PROBAT-FLUSS EXTRA NS.

Typical Properties:

Appearance: black-grey, granular

Odour: odourless

Reaction temperature: from approximately 850°C

Packaging:

25 kg paper bags, 2-fold

Storage and Shelf Life:

Keep container dry and tightly closed. If stored properly the shelf life is at least 6 months.

PROBAT - FLUSS EXTRA CARBON N

PROBAT - FLUSS EXTRA CARBON S

Covering agent
for copper and copper alloys (carbon carrier)

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. This leads to solidly ceramic inclusions as well as pores or shrinkage holes. Adherences, which are difficult to remove, sediment on the furnace walls and high-metal slag is formed on the bath surface. To avoid oxygen feed, an effective covering of the melt, supported by reducing conditions, has proved to be successful.

Application Range:

PROBAT-FLUSS EXTRA CARBON S is suitable for the covering of copper and copper alloy melts, particularly for brass. A reducing atmosphere is obtained and thus, the melt is prevented from oxidizing at simultaneous deoxidizing effect.

Quality Characteristics:

- consists of approximately 90 % carbon
- no humidity
- low content of ash
- uniform grain size (1 - 5 mm)
- deoxidizing portions
- lower sulphur content than in commercial charcoal
- has a slightly lower flash point than PROBAT-FLUSS EXTRA CARBON N

Addition Rate:

The surface of the melt should be covered with an approximately 1 - 2 cm thick layer of PROBAT-FLUSS EXTRA CARBON S.

Product Application:

PROBAT-FLUSS EXTRA CARBON S is put into the furnace together with the used material during the melting process. Thus, an oxidation of the metal is prevented and the deoxidizing effect of the oxides is diminished. If the alloy produces a lot of slag, incrustations are prevented.

After the melting process, add PROBAT-FLUSS EXTRA CARBON S until a close cover is obtained. Due to the low burn out, a reducing effect is obtained and the oxidation of the melt prevented while a deoxidizing effect is obtained by deoxidizing elements. By brass or nickel silver alloys the melt and slag must be treated with PROBAT-FLUSS EXTRA or PROBAT-FLUSS EXTRA NS.

Typical Properties:

Appearance: black-grey, granular

Odour: odourless

Reaction temperature: from approximately 800°C

Packaging:

25 kg paper bags, 2-fold

Storage and Shelf Life:

Keep container dry and tightly closed. If stored properly the shelf life is at least 6 months.

FLUXIT 150 WE

**Cleansing and covering agent
for brass alloys in continuous casting**

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. During continuous casting, this leads to solidly ceramic inclusions. Partially alloy elements are burnt, e. g. zinc. Only the application of highly active refining fluxes enables to protect from oxides. Additionally, covering with liquid fluxes supports the sliding properties of the gravity die.

Application Range:

FLUXIT 150 WE is suitable for all brass alloys with a copper content of up to 80 %, if the salt is liquid even more.

Quality Characteristics:

- protects the metal surfaces in the vertical continuous casting from oxides
- produces smooth bolt respectively ingot surfaces
- reacts completely fumeless and causes no air pollution

Addition Rate:

Care is to be taken that a complete protective cover layer is always available.

Product Application:

FLUXIT 150 WE is added after the mould has been given an initial casting stream. The casting speed may exceed 200 mm/minute.

For mould coating we recommend our fully colloidal graphite coating CILLOLIN CU 130. This product is of excellent coating adherence and supports the sliding properties of bars in the continuous casting.

FLUXIT 150 WE is not suitable for casting nozzles made of graphite or SiC. We recommend to use casting nozzles made of chromium graphite or chromium alloyed steel.

Typical Properties:

Appearance: white powder

Odour: odourless

Reaction temperature: from the melting temperature of the copper alloy

Packaging:

25 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored. Thickenings can be loosened by slightly knocking on the bag.

FLUXIT 150 WE

FLUXIT 175 WE

**Cleansing and covering agent
for brass alloys in continuous casting**

Notes on Technology:

Copper and its alloys tend in molten state to a high oxidation and absorption of gas. During continuous casting, this leads to solidly ceramic inclusions. Partially alloy elements are burnt, e. g. zinc. Only the application of highly active refining fluxes enables to protect from oxides. Additionally, covering with liquid fluxes supports the sliding properties of the gravity die.

Application Range:

FLUXIT 175 WE is suitable for all brass alloys with a copper content of up to 70 %, if the flux is liquid even more.

Quality Characteristics:

- develops, in addition to its excellent purifying and covering features, first class lubricating properties for obtaining clean and smooth surfaces on bolt and ingot material
- reacts completely fumeless and causes no air pollution
- cleans off zinc oxides on casting nozzles

Addition Rate:

The addition rate depends on the surface of the continuous casting mould; care is to be taken at all times that a complete protective cover layer is available.

Product Application:

FLUXIT 175 WE is added after the mould has been given an initial casting stream. The quantity to be fed should always be sufficient to assure the complete coverage of the surface. The casting speed may exceed 200 mm/minute.

For mould coating we recommend our fully colloidal graphite coating CILLOLIN CU 130. This product is of excellent coating adherence and supports the sliding properties of bars in the continuous casting.

FLUXIT 175 WE is not suitable for casting nozzles made of graphite or SiC. We recommend to use casting nozzles made of chromium graphite or chromium alloyed steel.

Typical Properties:

Appearance: white powder

Odour: odourless

Reaction temperature: from the melting temperature of the copper alloy

Packaging:

25 kg paper bags, 3-fold with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored. Thickenings can be loosened by slightly knocking on the bag.

DEGASAL CU T 200

**Nitrogen based degassing tablets
for copper and copper alloys**

Notes on Technology:

DEGASAL CU T 200 are tablets which clean and degas the melt by releasing nitrogen.

As a general rule DEGASAL CU T 200 is used when after the usual melt treatment an additional cleaning is necessary for safety reasons. Particularly in bale-out furnaces, where ingots are added to the melt, the preparation is responsible for an intensive homogenization of the melt

Application Range:

DEGASAL CU T 200 is applicable for all casting processes and for all copper alloys. It is mainly used where no supportive effect is possible, e. g. by an impeller treatment.

Quality Characteristics:

- removes hydrogen and oxides from the melt
- improves the casting quality essentially
- works in all types of furnaces and crucibles
- prevents unpleasant smoke and odour emissions
- does not influence the modification-effective elements
- ensures a good mixing of the melt

Addition Rate:

1 tablet per 100 kg melt or less (<0.2 %), depending on the level of impurities

Product Application:

Submerge the tablets by means of a clean, pre-heated and well coated immersion bell into the melt. Previously, the dross on the melt should be removed. After the very intense reaction the melt should be given a quiet period for some minutes before the impurities are thoroughly skimmed off again.

Typical Properties:

Appearance: white-grey tablets of 200 g

Odour: odourless

Reaction from the melting temperature of the copper alloy

Packaging:

162 tablets of 200 g packed in cardboard box

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

DEGASAL CU T 200

MIKROSAL CU T 200

**Tablet for grain refinement
of copper and its alloys
(particularly brass) based on boron**

Notes on Technology:

A highly effective grain refinement is achieved by the use of MIKROSAL CU T 200. The effect of the tablet is based on the formation of finest borate crystals in the melt, which act as crystallizers for the solidified brass. They are highly active due to their formation in the melt.

Application Range:

Before the casting, the tablets are put into the melt by means of a well coated (e. g. PYRONOL) immersion bell. A step-wise addition of MIKROSAL CU T 200 is possible.

Quality Characteristics:

- offers completely dense and micro-shrinkage-free casting
- increases all technological values
- ensures a clean and irreproachable surface of the coating part
- permits an essentially better flowing of the melt

Addition Rate:

0.1 – 0.2 % of the metal weight (e. g. 200 g for 200 kg melt)

Product Application:

Care is to be taken that the recommended addition of MIKROSAL CU T 200 is worked under up to the lower third of the melt. A uniform effect within the entire melt is obtained by constantly moving the immersion bell.

Typical Properties:

Appearance: grey tablets

Odour: odourless

Reaction temperature: from the melting temperature of the copper alloy

Packaging:

162 tablets of 200g packed in cardboard box

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

PROBAT - FLUSS LUNKERPULVER CU 200

Agent for the application on the feeder of the copper casting part to increase the feeding effect applicable for all casting alloys in the sand casting

Notes on Technology:

Thick-walled casting parts are often difficult to feed. Therefore, the feeder must be so designed that it can hold sufficient mass in order to keep the metal in liquid state over a sufficient period of time so that thick-walled parts can still be fed safely. If the feeder is not sufficiently designed, then shrinkage holes will be the result and the casting part must be disposed of as scrap. A relatively simply remedy is to keep the feeder in the liquid state over an extended period of time.

To achieve this, PROBAT - FLUSS LUNKERPULVER CU 200 is scattered onto the surface of the feeder and the heat of the liquid metal ignites the powder. An exothermic reaction is started, which produces sufficient heat, keeping the feeder in the liquid state over an extended period of time so that its function as re-feeding is kept until the casting has completely solidified.

Application Range:

PROBAT - FLUSS LUNKERPULVER CU 200 is suited for all casting alloys used in the sand casting and should be scattered after the pouring of the metal.

Quality Characteristics:

- is an exothermically reacting powder
- develops much heat keeping the metal liquid over an extended period of time
- impedes the cooling down of the feeder on the surface
- impedes the shrinkage hole formation
- can be easily removed after the reaction
- is of very low smoke emission

Addition Rate:

Depending on the diameter of the riser respectively feeder the powder layer should be several centimetres.

Product Application:

PROBAT - FLUSS LUNKERPULVER CU 200 ignites after having scattered it, immediately after the pouring into the mould, on the feeder or riser. The completely reacted powder remains on the aluminium until the complete solidification of the casting has been obtained and then can be removed easily.

Typical Properties:

Appearance: dark red powder

Odour: odourless

Reaction temperature: from approximately 700°C

Packaging:

25 kg paper bags, 3-fold with plastics lining or special packaging available

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

ZINKAN

**Refining, deoxidizing and melting agent
for zinc and zinc alloys**

Notes on Technology:

When melting zinc and zinc alloys, metal oxides are formed on the bath surface due to air contact. Therefore the addition of a suitable refining and deoxidizing agent is necessary to remove impurities and reduce the loss of metal.

Application Range:

ZINKAN is a universally applicable melting agent for cleaning the melt, deoxidizing of zinc oxides and zinc as well as for reducing the metal content of the zinc dross.

Quality Characteristics:

- has a low melting temperature
- offers optimal oxidation protection
- is fumeless and environment-friendly
- produces low-metal dross
- is neutral towards zinc

Addition Rate:

7 - 10 % of the estimated weight of the dross is necessary for the dross treatment. In case of extreme impurities, an addition of up to 15 % of the dross weight may be necessary.

For the cleaning and covering of the melt 0.1 - 0.5 % of the metal weight is necessary, depending on the level of impurities.

Product Application:

ZINKAN can be already added with the raw materials to bind the impurities during the beginning melting process and to reduce the oxidation with atmospheric oxygen. Care is to be taken for an even covering of the melt surface. Stir ZINKAN intensively with the dross for deoxidizing and reducing the share of metal. After the completion of the reaction and before the casting, skim off the dry, low-metal dross.

Typical Properties:

Appearance: red powder

Odour: odourless

Reaction temperature: from approximately 385 °C

Packaging:

50 kg paper bags, fibre close bags

Storage and Shelf Life:

Keep container dry and tightly closed as hygroscopic. The shelf life is at least 6 months if properly stored.

SUPERIEUR

Cleansing and deoxidizing agent for lead and lead-tin alloys of less than 10 % tin

Notes on Technology:

Molten lead alloys tend to oxidation and formation of specific heavy drosses if they are not suitably covered during the melting process. When casting, the oxides and slag particles remain included in the casting part and settle around the grain boundaries. As a consequence of this, the mechanical properties are impaired and fissures and fractures can arise. If, as is the case with most lead alloys, hardening alloy elements are added, they tend to oxidize first and to change the composition of the complete alloy. This change in analysis may even make the alloy unusable for certain purposes. The presence of merely small quantities of impurities can already highly reduce the casting ability of lead alloys. Care must be particularly taken that aluminium and zinc are not added as only 1 % of these materials affects the process negatively. Apart from the fact that scrap material can only be used if their composition is known, it is necessary to cover the metal bath with a suitable covering and purifying agent as SUPERIEUR.

Application Range:

SUPERIEUR is a covering and cleansing agent for lead and lead alloys of at least 10 % tin. It is a powder which can be not only successfully used as covering agent, but also for the meltdown of drosses and other residues.

Quality Characteristics:

- removes oxides, impurities and non-metal inclusion from the metal
- improves the flowability and reduced the danger of insufficient flowability
- ensures a low-metal dross
- can be used simply and economically

Addition Rate:

The addition rate depends on the size of the melt surface and can vary, hence, between 0.1 and 0.2 %.

Product Application:

Half of the quantity should be applied as soon as the raw material is liquid. If required, add further quantity to keep a complete protective covering. As soon as the raw material is completely molten, add the remaining quantity by means of a perforated immersion bell or stir it into. After completion of the reaction, stir the melt and skim it off. Avoid iron absorption by coating the immersion bell with PYRONOL.

Typical Properties:

Appearance: black powder

Odour: odourless

Reaction temperature: from the melting temperature of the lead-tin alloy

Packaging:

25 kg paper bags, 3-folig with plastics lining

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

SUPERIEUR

CILLOLIN CU 160

Heat conduction, fully colloidal gravity die coating
with low sedimentation characteristics

Notes on Technology:

The choice of a coating for the rigid and movable parts of gravity dies is of the utmost importance for the quality of the casting part. The structure of the used coating has a direct influence on the flowability and the mould filling of the melt which flows into the gravity die. The coating highly influences the established casting surface and regulates the solidification by its thermal conductivity. Coatings in continuous and discontinuous gravity die casting should be convenient to use, have a uniform consistency and high adhesive strength.

Application Range:

CILLOLIN CU 160 is suitable for use on all gravity die materials in CU-gravity die casting.

Quality Characteristics:

- ensures excellent adhesion, especially regarding movable parts of the gravity die
- produces a uniform surface structure
- reduced the downtime caused by cleaning or milling
- ensures the highest level of dimensional accuracy
- prevents sedimentation from occurring too rapidly by means of a thixotropic agent
- facilitates the removal of completed casting parts

Addition Rate:

Dilute with softened water at a ratio of 1:3 up to 1:10

Product Application:

Before application, clean the gravity die thoroughly (e. g. with a wire brush). New gravity dies should thoroughly be degreased before use. Therefore use a hot caustic soda solution, petroleum or similar solvent. After that, heat the gravity die on the rear and then apply CILLOLIN CU 160 thinly and uniformly, using a spray gun, a fine hair brush or a piece of lambskin. CILLOLIN CU 160 can also be used as protective coating for crucibles and casting tools. In gravity die casting, CILLOLIN CU 160 can be diluted with water as required and the gravity die can be dipped after the casting.

Typical Properties:

Appearance: black, pasty

Odour: odourless

Surface temperature: room temperature

Packaging:

Concentrate – homogenized in cans of 25, 10, 5 and 1 kg

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

CILLOLIN CU 160 plus

Heat conduction, fully colloidal gravity die coating
with low sedimentation characteristics

Notes on Technology:

The choice of a coating for the rigid and movable parts of gravity dies is of the utmost importance for the quality of the casting part. The structure of the used coating has a direct influence on the flowability and the mould filing of the melt which flows into the gravity die. The coating highly influences the established casting surface and regulates the solidification by its thermal conductivity. Coatings in continuous and discontinuous gravity die casting should be convenient to use, have a uniform consistency and high adhesive strength.

Application Range:

CILLOLIN CU 160 plus is suitable for use on all gravity die materials in CU-gravity die casting.

Quality Characteristics:

- ensures excellent adhesion, especially regarding movable parts of the gravity die
- produces a uniform surface structure
- reduced the downtime caused by cleaning or milling
- ensures the highest level of dimensional accuracy
- prevents sedimentation from occurring too rapidly by means of a thixotropic agent
- facilitates the removal of completed casting parts
- has increased adhesive and sliding properties compared to CILLOLIN CU 160

Addition Rate:

Dilute with softened water at a ratio of 1:3 up to 1:10

Product Application:

Before application, clean the gravity die thoroughly (e.g. with a wire brush). New gravity dies should thoroughly be degreased before use. Therefore use a hot caustic soda solution, petroleum or similar solvent. After that, heat the gravity die on the rear and then apply CILLOLIN CU 160 plus thinly and uniformly, using a spray gun, a fine hair brush or a piece of lambskin. CILLOLIN CU 160 plus can also be used as protective coating for crucibles and casting tools.

Typical Properties:

Appearance: black, pasty

Odour: odourless

Surface temperature: cold or warm, max. 300°C

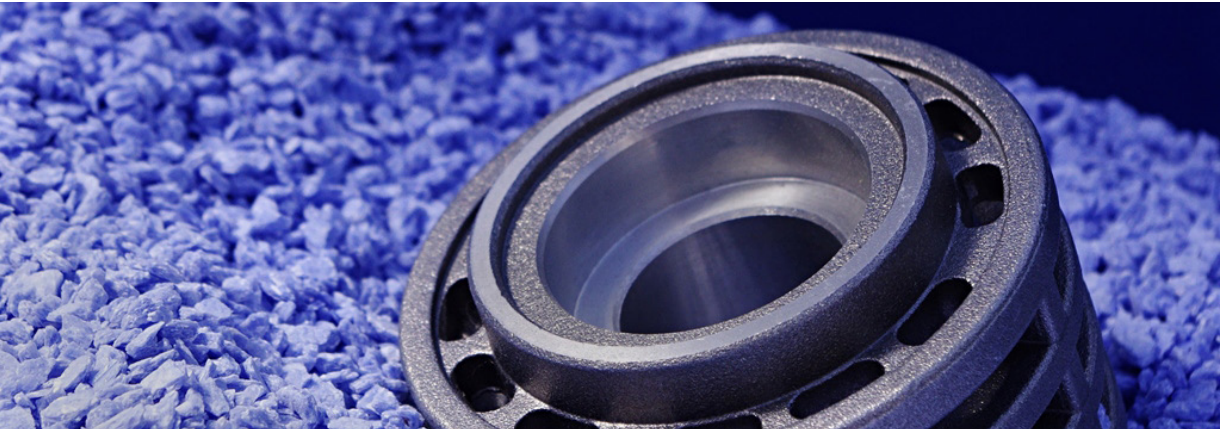
Packaging:

Concentrate – homogenized in cans of 25, 10, 5 and 1 kg

Storage and Shelf Life:

Store in a cool place (below 32°C/90°F); keep container dry and tightly closed. The shelf life is at least 6 months if properly stored.

NOTIZEN



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