

Fe Metallurgy

Optimisation of metallurgical processes





Metallurgical products for the production of Fe based cast alloys especially cast iron alloys

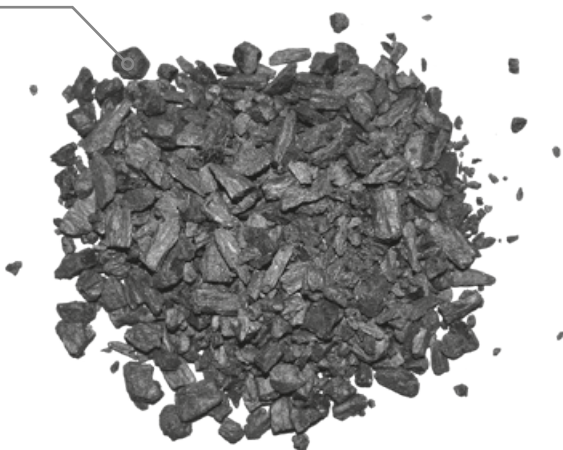
The formation of graphite and microstructure in cast iron materials determines the mechanical properties of castings made of cast iron materials. Therefore in addition to the adjustment of a suitable chemical composition the focus of the metallurgical process design is on graphite formation.

While a melt treatment with magnesium is mandatory for the production of ductile cast iron, a suitable and ideally multi-stage inoculation process is usually required for the production of all cast iron

grades with nodular as well as with lamellar graphite in order to set favourable conditions for graphite nucleation and growth in the melt.

The HA Group offers a comprehensive range of products for the production of Fe based casting alloys and especially cast iron alloys. Our specialists will support you with their knowledge and experience in the selection and introduction of the products in your foundry by using suitable mobile measuring technologies e.g. for thermal analysis.

FeSiMg



FeCr



FeSiMg alloys for the nodularising treatment of cast iron alloys

An essential part of the HA product range are granular FeSiMg alloys with up to approx. 10% magnesium. Depending on the specific operating conditions (e.g. treatment technology, ladle geometry, casting weight, transfer times) FeSiMg alloys with different chemical compositions (e.g. contents of calcium and rare earths) can be supplied in different grain sizes.

Besides granular materials also treatment alloys in form of cored wire are available. In this case the Mg content of the filling can be up to 45%.

Depending on the customer's requirements the cored wire can be wound on the coils for horizontal or vertical withdrawal.

- granular materials in different grain sizes
- up to ~10% Mg
- with different levels of calcium depending on the treatment conditions
- without rare earth as well as with different contents of rare earths depending on the casting geometry
- in different packagings
- as cored wire with up to 45% Mg in the alloy

FeSi based inoculants

The requirements for the properties and functionality of cast iron parts are very complex. This requires different inoculants which can for example promote the eutectic solidification, minimise the chill tendency, increase the nodule number and the nodularity. The range of inoculants in the HA group is correspondingly diverse.

The HA product range includes different inoculants for the production of parts made of cast iron with lamellar and nodular graphite. The portfolio includes various FeSi based inoculants with different contents

of primary (e.g. Ca, Ba, Sr), beneficial (e.g. Al, Mn, Zr, Ce) and special (e.g. Bi, La) chemical elements.

Of course the inoculation alloys are available in different grain sizes for its use in different process stages and with different inoculation technologies:

- FeSi based inoculation alloys
- for grey and ductile cast iron
- with different chemical compositions
- in several grain sizes for different inoculation steps and technologies

Alloying materials and other melt additives

The HA product range also includes alloying materials and other melt additives for an efficient charge composition and metallurgically optimised melting process of cast iron alloys, such as:

- Ferroalloys
- Silicon carbide (SiC)
- Carburiser
- Cupola briquettes



Auxiliary materials

The HA Group's product range is rounded off by a number of auxiliary materials, such as:

- slag binders
- refractory materials

Consulting & support

Our specialists support you with their knowledge and experience in the selection of metallurgical products for your process, its introduction and the optimisation of your metallurgical process. If required, modern technologies and mobile measuring equipment are available for this purpose, such as:

- simulation of solidification and mould filling
- thermal analysis
- oxygen activity measurement

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