Freebee Cryolite IA for the Primary and Secondary Aluminium Industry

Freebee Cryolite IA offers distinct advantages over other types of cryolite due to its composition, variable particle size and very high quality.
Advantages that works for you

Freebee Cryolite IA offers distinct advantages for your production

By using the Freebee Cryolite IA many problems will be solved due to the composition and very high quality.

Properties and Benefits

1. The Freebee Cryolite IA has the same properties as the Natural Greenland Cryolite
2. The Freebee Cryolite IA is Ph neutral
3. Freebee production facilities allow us to deliver grain sizes in accordance with customer needs

HISTORY

After the mining of Natural Greenland Cryolite in Ivigtuut, Greenland came to an end and the production was terminated in 1990 in Copenhagen, Denmark, it was decided to investigate the possibilities to develop the best substitute for the Natural Greenland Cryolite to be used within the Primary and Secondary Aluminium industries worldwide.

The inventory of the Natural Greenland Cryolite was sold out at the end of 1992, and the Cryolite IA was introduced into the market.

USAGE

With its perfect quality and high efficiency, Freebee Cryolite IA offers distinct advantages over other types of cryolite. The product is mainly used within the Primary and Secondary Aluminium industries.

THE PRIMARY ALUMINIUM INDUSTRY

Cryolite is used in the production of aluminium, as a solvent, which separates aluminium metal and oxygen gas during the Hall-Heroult smelting process.

Normally, the process of alumina dissolving occurs at 920°-980°C during electrolysis. The process is continuous and takes place in the cells (pots), where molten cryolite bath is mixed with alumina. Aluminium separation occurs at the bottom of the cell due to fact that cryolite density is lower than that of liquid aluminium.

Due to its outstanding properties, Freebee Cryolite IA has the following benefits while being used in the Primary Aluminium Industry:

1. It lowers the melting point of alumina
2. The use of cryolite makes the smelting process cheaper and more cost effective due to the reduction of energy costs
3. Freebe cryolite comes in different qualities and grain sizes, which gives an opportunity for a smelter to make the production more efficient in terms of excess materials waste.
THE SECONDARY ALUMINIUM INDUSTRY

Freebee Cryolite IA is widely used in the Secondary Aluminium Industry as additive during the smelting and refining of materials containing aluminium such as scrap, machining turnings, and dross.

Various studies show the effect of cryolite addition on the metal yield. The process of aluminium smelting usually occurs in the rotary drum or hearth furnaces. With higher cryolite inclusion into the process of smelting the accumulation of the metal fractions is improved.

Freebee Cryolite IA offers certain benefits with its usage in the Secondary Aluminium Industry. The addition of small amounts of cryolite (3-5%) has the effect of stripping off the oxide skin surrounding the aluminium droplets and allows them to coalesce to form larger droplets that can escape from the liquid salt flux into the main pool of metal. This increases metal recovery as it reduces the amount of aluminium droplets becoming trapped in the spent salt cake.

Cryolite could be also used as component of Freebee FY-5 Salt Flux including also Sodium Chloride (NaCl) and Potassium Chloride (KCl).

It is also claimed that when pieces of aluminium scrap such as shredded cans are melted in a salt flux containing cryolite, they melt and change shape to a nearly spherical drop due to the least interfacial area. Without cryolite the shape remains far from spherical, thus there is more surface area for oxidation to occur.

Also additions of small quantities of cryolite will depress the melting point of the salt flux mixture, which will inhibit still further the possibility of oxidation of the aluminium and also reduce energy costs.

Production

The Freebee Cryolite IA has been very well accepted by our customers worldwide. We produce the Freebee Cryolite IA in Denmark and the UK.