



CNPC POWDER

**SPECIALIZED IN
POWDER MATERIALS**

POWDER FOR WELDING APPLICATIONS

WITH PROGRESSIVE TECHNOLOGICAL TRENDS, EVERY CUSTOMER WANTS TO IMPROVE THEIR PROCESS PRODUCTIVITY, QUALITY OF THE PRODUCT, AND REDUCE PRODUCTION COSTS. THE WELDING INDUSTRY HAS MOVED TOWARD METAL POWDERS AS AN EFFECTIVE WAY TO ENHANCE PRODUCTIVITY, ACHIEVE BETTER WELDING CHARACTERISTICS, AND IMPROVE THE QUALITY OF THE WELD BEADS.

METAL POWDERS IN THE WELDING INDUSTRY MOSTLY USED IN TWO MAIN WAYS:

WELDING ELECTRODE MANUFACTURING

A wide range of metal and alloy powders are available to manufactures of welding electrodes. These include iron, chromium, manganese and nickel powders. As well, there are alloy powders containing boron, chromium, manganese, molybdenum, niobium, silicon, or vanadium.

The coating of welding electrode core wire with multi-ingredient compositions serves several purposes:

- Control of welding parameters and arc stability
- Slag control
- Control of weld deposition quality
- Improved weld deposition rate

The purity of the powder is also a critical parameter to control the quality of the resultant weld joint. Most other factors are particle shape and size distribution of the powders. There has been a tendency to use powders with high apparent density and particle sizes between 40 and 200 mesh sizes.

→ High quality powders



→ High quality materials



→ Excellent Performance



HARDFACING

Hardfacing is the application of a hard, wear-resistant coating by welding, thermal spraying, or similar process. Hardfacing is used to improve wear-resistance of new components, and to repair and rebuild worn parts in the application. Hardfacing metal is applied either in powder form, as solid welding rods, or as tube rods.

A wide range of alloy powders are used to provide protection from wear or loss of material by galling, abrasion, erosion, or corrosion. Powders are particularly suited to this application because of the possibility of tailoring the composition of the hardfacing alloy to obtain specific properties. Many of these alloys cannot be produced by conventional methods because of fabrication difficulties.

Hardfacing alloys are mostly created through complex compositions based on iron, cobalt, or nickel. Iron based compositions are the most frequently used. Hardfacing powder coatings are deposited by flame spraying, plasma spraying or specialized hardfacing systems.

Powders for thermal spraying are usually produced by gas or water atomization, however milling and crushing operations are also used to produce tungsten carbide powders, some grades of nickel-based powders and other suitable materials.

Continue reading on the next page >



WELDING ELECTRODE COATINGS IMPORTANCE

During welding process, flux play a number of very important roles to protect the quality of the weld. Flux protects the weld pool, and that is why it is frequently utilized in electrode outer coatings. Sometimes it is present in the core of the filler wires.

The primary functions of flux in a welding process are:

- To remove impurities from the molten metal.
- Helps slag formation which can be easily removed from the weld.
- To protect the weld deposit from air contamination.
- To add alloy materials in the weldment.
- To add an additional filler metal to the weldment.

CNPC POWDER offers the welding industry an ample suite of powders. We offer a variety of particle sizes, shapes, apparent densities and chemical compositions to suit your needs.

CNPC POWDER continues to provide solutions for efficiency and performance in welding applications. All our powders are made to match your welding needs.

BASIC PRINCIPLES OF DIFFERENT COATED WELDING ELECTRODES

➔ Better Mechanical properties

1. Alloying metals including nickel, molybdenum, and chromium to provide alloy content to the deposited weld metal for better mechanical properties.

➔ Adjustment and stability

2. Iron or manganese oxide to adjust the fluidity and properties of the slag and also to help stabilize the arc.

➔ Increase productivity

3. Iron powder can increase productivity by providing extra metal to be deposited in the weld.

➔ CNPC POWDERS



CNPC POWDER offers high purity Iron powder for welding applications. Other powders we offer include high purity manganese, nickel powder, and a variety of alloys.

For more information contact us at: www.cnpcpowder.com

Feel free to connect with one of our representatives to select the powder that provides the best solutions for your industry.