

STORAGE AND HANDLING OF COATED ELECTRODES

1. MANUFACTURE

Electrode cores and coatings are manufactured separately and are then joined together in an extrusion press to obtain the finished electrode.

The core of the electrode is made from wire rod whereas the coating is prepared using ingredients that are sprayed on. This mixture includes water to achieve a paste, which is the coating over the wire rod to produce the electrode in the extrusion press.

After the material comes out of the extrusion press, it goes into a drying oven to eliminate the moisture in the coating.

Electrodes that are susceptible to absorbing moisture from the atmosphere go through a second drying phase. They are sent to a temperature and moisture-controlled room where they are sealed in airtight packaging to protect the electrode from moisture.

2. HANDLING AND TREATMENT OF ELECTRODES

The coating of the electrodes is similar to ceramic products and is therefore not malleable; if the electrode is bent or receives a blow it can crack or pieces of the coating can become detached.

Electrodes that have suffered damage such as cracks lead to deficient welds, due to the fact that the gases produced in the arc escape. Deficient welds can also occur as a result of the mixing of detached pieces of coating in the weld pool, as they can generate gases that lead to pores and the inclusion of slag.

It is important to bear the porosity of some coatings in mind, as they can become impregnated with powder, oil, dirt and moisture. When these electrodes are welded they can give off gases and impurities, leading to gaps and defects in the surface and the inclusion of particles inside the welding bead.

To avoid defects that can occur due to the poor condition of the electrodes, the following recommendations have been made.

It is recommended to transport the electrodes in closed containers, and only transport the necessary amount for the operation to be carried out. It is important to handle the electrodes with clean, dry gloves, and not to expose them to humid environments.

3. STORAGE, DRYING AND DEFECTS

The coating of the electrodes is hygroscopic, which means that they tend to absorb moisture from the air.

When the electrode has absorbed moisture and is used in a welding process, the weld is very likely to be defective, leading to pores, pickling and cracks. In addition to these defects, we can observe alterations in the arc, as well as excessive projections.

To avoid electrodes absorbing humidity, it is recommendable to package and store them in clean places.

In the case of basic electrodes, with a low hydrogen content, these are vacuum-packed to avoid them absorbing moisture. We recommend drying them for two hours at a uniform temperature of 250° to 350°C for 2 hours before use. If these electrodes are left in a place with atmospheric humidity, they will need to be placed in an oven before they can be dried. We recommend having drying ovens close to the work stations set to a temperature of 65° to 150°C.



STORAGE AND HANDLING OF WELDING WIRE AND ROD.

1. INTRODUCTION OF WIRE AND ROD

Wire and rod used in welding processes have a small diameter. Wire is supplied on metal or plastic reels of 5 and 15kg as well as on 250kg drums.

Welding source rod is supplied in packets of 5 and/or 10kg.

The choice of the source material depends on the composition and properties of the base material. A similar or identical composition should be chosen. On some occasions, in order to achieve welds with different types of welding bead, wire or rod with a completely different composition to that of the base material will be used.

Flux core tubular wire consists of a steel tube filled with alloying elements and flux. The flux inside this wire serves to improve its mechanical and metallurgical properties. It also results in better quality welds, protecting the welding metal better, in addition to stabilising the arc.

2. STORAGE AND DEFECTS

In the case of wire and rod, these must be stored in a clean place free of obstacles, as the packaging protecting the reel and the material can get damaged.

We recommend removing any damaged boxes, as the material may have been affected by blows or the entrance of dirt or atmospheric humidity which could cause the material to rust.

Special attention must be paid to tubular wire, to avoid external moisture affecting the flux. Ideally the original packaging should be kept, as once this is open the shelf life of the product is seriously reduced. In any case, it should not be stored for more than a year.

Reels of tubular wire should be consumed as soon as possible once started, within the same day if possible. This wire should be kept in a dry place during use. The wire should not be left in the welding machine or outdoors for extended periods of time, especially overnight as condensation could form on the surface of the wire.

To avoid condensation on the tubular wire, it should be stored in the original packaging after use and in temperature and humidity-controlled conditions.

The defects that may occur with solid wire and source rod are mainly due to dirt on the surface of these, which can lead to pores in the welding bead.

In the case of tubular wire, this can absorb moisture leading to pores, pickling, projections and even the instability of the arc.