

## CUSTOMER INFORMATION FORM

### Konu: How to Overcome Glowing Red of Electrodes?

One of the most common problems faced by users when welding with covered electrodes is the electrode glowing red after halfway through welding. This is an undesirable situation and below are the usage or application errors that may cause it and suggestions for resolving this problem.

#### 1. Used current value(A) should be checked:

The current value used in welding applications with covered electrodes is one of the most important parameters. If the current value used is not selected according to the electrode diameter, the electrodes start to glowing red after half while welding. Thus, should be careful to the information label on the supplied electrode. The label information contains the current range value that should be used for that electrode. Example label image of our ESR 13 electrode is shown in Figure 1. The current range value to be welded is marked in red.

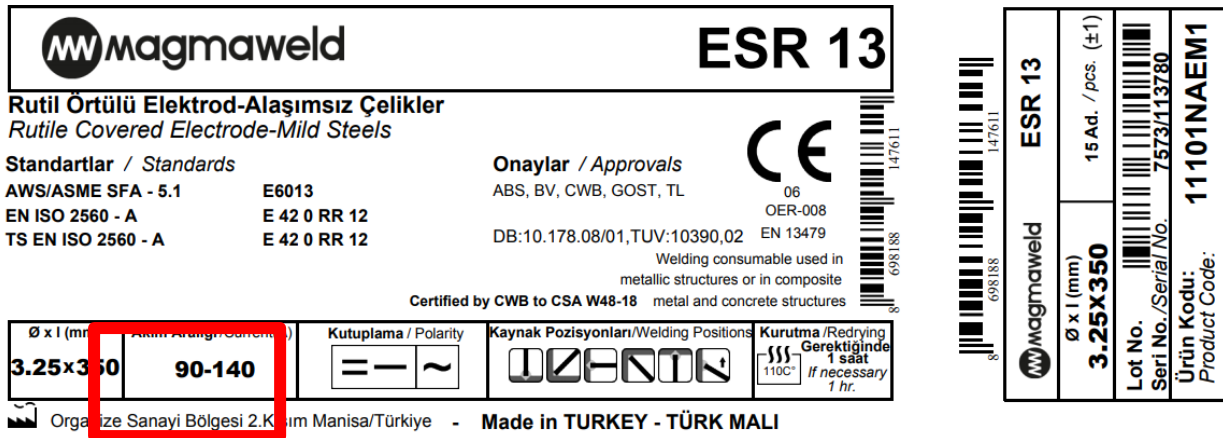


Figure-1 Example of an information label

#### 2. The parameter should be selected according to the type of material and electrode:

Thermal and electrical conductivity of materials are different from each other. For example, stainless steel electrodes have lower thermal and electrical conductivity than carbon steel electrodes. Thus, stainless steel electrodes of the same diameter and current value heat up and redden more than carbon steel electrodes.

**3. Proper arc length should be applied due to type of the electrode:**

Covered electrodes are suitable for working in different arc lengths due to the chemistry of the components they contain. Generally, basic electrodes are suitable for working with a short arc length, while rutile electrodes are suitable for working with relatively longer arc lengths.

**4. Suitable polarization should be selected due to the electrode type:**

Due to the additives in the cover of electrodes, some electrodes are suitable for operating in alternate current, while others can only be operated in direct current. With the same situation, polarization is also crucial. Because, some electrodes can work in the positive pole of the electrode in direct current while some can weld in both poles. Appropriate polarization information for Magmaweld covered electrode products is given in Table 1.

<b>Product</b>	<b>Alternate current (AC)</b>	<b>Direct current electrode positive (DC+)</b>	<b>Direct current electrode negative (DC-)</b>
<b>ESR 11</b>	Yes	No	Yes
<b>ESR 13</b>	Yes	No	Yes
<b>ESC 60</b>	No	Yes	<b>Yes (root pass weld)</b>
<b>ESB 48</b>	No	Yes	No
<b>ESB 52</b>	No	Yes	No

**Table-1** Polarization information by product

**5. Grounding cable must be as close as possible to the working area:**

Grounding is crucial while welding with covered electrodes. Apart from parameters such as condition of the grounding table and its suitability for the welding application, it is also an important parameter where the grounding made on the workpiece during operation. If grounding is done away from the welding area, then the electrode may start to crimson after halfway through. In addition, grounding wire must have good electrical conductivity during welding. For this, grounding with narrowed cross-sections and broken(damaged) wires should not be used. While

grounding, the tip of the pliers(copper conductor) must be in close contact with the workpiece. Grounding should not be done from the middle of the pliers. In addition, grounding should be made from unpainted parts as much as possible. The visuals in Figure 2 and Figure 3 show propriate and inappropriate grounding practices.



Figure-2 Grounding should be done close to the welding area



Figure-3 Inappropriate grounding practices

## 6. After drying, the electrode should be rested before using:

If a drying process applied to the electrode before welding, the welding should be done after the electrode is rested. Rutile electrodes waiting under normal workshop conditions can be used without drying. However, dampened electrodes must be dried at the temperature recommended by the manufacturer before use. In basic electrodes, the dried electrodes should be kept in electrode thermos until they are used and welding should be performed while they hot; immediately after they are removed from the thermos.