Storage and handling

Recommendations for the storage, re-drying and handling of Murex covered electrodes

General information
All covered electrodes are sensitive to moisture re-absorption to a greater or lesser degree. Care must be taken during storage and handling to prevent moisture being re-absorbed.

Storage
Covered electrodes of any type will pick up moisture only very slowly if they are stored in the following climatic conditions:

Temperature	Relative humidity
5-15°C	< 60%
15-25°C	< 50%
above 25°C	< 40%

During the winter, it is possible to have low relative humidity by keeping the temperature in the store room at least 10°C above the outdoor temperature. During certain periods in the summer and in a tropical climate, sufficiently low relative humidity can be maintained by air de-humidification.

If the electrodes have been stored in a cold place, allow them to reach ambient temperature before breaking the package.

Re-drying
Low-hydrogen basic electrodes should be redried before use whenever there are application requirements relating to weld metal hydrogen content and/or radiographic soundness (not needed for VacPac™.)

Acid rutile stainless electrodes and all types of basic electrode may produce pores in the weld if they have not been stored in sufficiently dry conditions. Redrying the electrodes will restore their usability.

Mild steel rutile and acid electrodes normally need no redrying.

Cellulose electrodes must not be redried.

Electrodes which are seriously damaged by moisture can normally not be redried with first class results. These electrodes should be scrapped.

Redrying conditions
Redrying temperatures and holding times are specified on the label and in the product specification. The redrying temperature is the temperature in the bulk of the electrodes.

The redrying time is measured from the point at which the redrying temperature has been reached.

Do not stack more than four layers of electrodes in the redrying oven.

It is recommended not to redry covered electrodes more than three times.

Holding oven
The holding oven is used for intermediate storage to avoid moisture pick-up in the coating of low-hydrogen electrodes and acid rutile stainless electrodes. The electrodes which should be stored in the holding oven are:

1. Electrodes that have been redried.
2. Electrodes that have been removed from their hermetically-sealed container.
3. Electrodes that are considered to be in good condition and are transferred directly from the store room after unpacking.

Holding oven temperature: 120-150°C.

Precautions on site
Keep the electrodes in electrically-heated quivers at a minimum temperature of 70°C.

After work, return the remaining electrodes to the holding oven.

Discoloration in the coating
If the colour of the electrodes changes during storage, they should be scrapped or the electrode manufacturer should be contacted.

Damaged coating
Mechanically damaged electrodes on which parts of the coating are missing will not perform correctly and should be scrapped.

VacPac™
Electrodes in VacPac™ will not pick up any moisture during storage. They require no redrying before use, provided the package is undamaged. This is indicated by a vacuum in the package.

Handling VacPac™ electrodes
Protect VacPac™ from damage at all times.

The outer board packaging offers extra protection from mechanical damage to the metal foil. Handle the single inner, metal foil, VacPac™ with special care.

Do not use a knife or any other sharp object to open the outer board packaging.

Before using VacPac™ electrodes
Check if the protective foil still contains a vacuum. If the vacuum has been lost, re-dry the electrodes before use.

Cut open the protective foil at one end.

Do not take out more than one electrode at a time, thereby ensuring that the remaining electrodes are still protected inside the package. Tuck the flap back in the plastic capsule.

Discard or re-dry electrodes that have been exposed to the atmosphere in an opened Vac-Pac™ for more than 12 hours.

Storage and handling recommendations for cored wires
Cored wire should be stored in conditions which prevent the accelerated deterioration of products or packaging. All cored wires should avoid direct contact with water or moisture. This could take the form of rain or the condensation of moisture on a cold wire.

Cored wires must be stored in dry conditions. The relative humidity and temperature should be monitored and the temperature should not fall below the dew point.

To avoid condensation, the wire should be kept in the original packaging and, if necessary, left to warm up to at least the ambient temperature before opening the package.

Other hydrogen-containing substances, such as oil, grease and corrosion, or substances that could absorb moisture must also be avoided on the wire surface.

Products must be stored in such a way as to avoid damage during storage.

MMA Electrodes Chemical Composition

Table 1 Fume analysis for MMA Electrodes where control of total welding fume to 5mg/m^3 will ensure that no constituent of the fume will exceed its own recommendation limit.

Fume Analysis (wt %)							
Electrode	**Fe**	**Mn**	**Ni**	**Cr**	**Cu**	**Pb**	**F**
Celtian	40	3.5	0.1	<0.1	0.2	0.1	-
Ferex 7016	12	5	<0.1	0.1	<0.1	0.1	13
Ferex 7018LT	20	5	0.1	<0.1	<0.1	0.4	18
Fortex 7018	13	6	0.2	<0.1	0.1	0.4	16
Mirrospeed	30	7	0.1	<0.1	0.1	0.1	-
Satinex	27	7	<0.1	<0.1	0.1	<0.1	-
Super Fastex	21	5	<0.1	<0.1	<0.1	<0.1	-
Vodex	35	5	<0.1	<0.1	0.1	0.1	-
Vortic Marine	40	5	0.1	0.1	0.1	0.1	-
Zodian Universal	30	7	0.1	<0.1	0.1	0.1	-

Table 2 Fume analysis for MMA Electrodes where the fume contains hexavalent chromium compounds for which a long term exposure limit of 0.05mg/m^3 is included in Guidance Note EH40.

Fume Analysis (wt %)							
Electrode	**Fe**	**Mn**	**Ni**	**Cr**	**Cu**	**Pb**	**F**
Armoid 1	12	6	1	4	0.1	0.1	11
Nicrex E308L	6	3	0.4	5	<0.1	0.1	4
Nicrex E312	12	12	1.5	12.5	<0.1	0.1	10
Nicrex E316L	6	3	0.6	4	<0.1	0.1	7