Handling, storage, drying stick electrodes

To ensure satisfactory weld quality, the stick must be handled and stored properly before use. Electrode coatings are carefully designed to provide the necessary operating characteristics and weld properties required for each electrode type. Generally, stick electrodes should be stored in their original packing. The storage facilities should have an infrastructure which makes the "first in - first out" principle possible. Electrodes are manufactured to be within acceptable moisture limits, consistent with the type of covering and strength of the weld metal. It is recommended that the storage room is organised in such way that the electrodes are stored dry and safe. Moisturizing units should not be stored in the same area. Open packaging should be stored in special conditioned areas.

TYPICAL STORAGE CONDITIONS FOR STICK ELECTRODES
Storage of covered electrodes in cardboard boxes requires in general humidity and temperature controlled storage areas. Recommended storage conditions include: • Temperature 18-25°C, relative humidity max. 60% • Temperature 25-35°C, relative humidity max. 50%

Re-drying of stick electrodes is recommended if the electrodes have picked up moisture or is imperiously required for low-hydrogen basic coated electrodes. We advise you to use the electrodes from a quiver after re-drying.

TYPICAL RE-DRYING GUIDELINES FOR STICK ELECTRODES				
Electrodes for	**Coating type**	**Re-drying recommended**	**Re-dry temperature ºC**	**Re-drying time / h.**
Unalloyed and low alloy structural steel	A, AR, RC, R, RR	No	--	--
	RB, B	Yes	300-350	2 - 10
Pipelines	C	Not allowed!	--	--
Fine grain steel	B	Yes	300-350	2 - 10
High temperature steel	R	No	--	--
	B	Yes	300-350	2 - 10
Stainless and heat resisting steel	R	Yes	120-200	2 - 10
	RB, B	No	--	--
Soft-martensitic steel	B	Yes	300-350	2 - 10
Duplex steel	R, RB	Yes	250-300	2 - 10
Hardfacing	R	No	--	--
	RB, B	Yes	300-350	2 - 10
Ni-base alloys	All types	If necessary	120-300	2 - 10

In certain cases it may be reasonable to re-dry electrodes even when they are not mentioned in the table above. Should the coating exhibit an excessively high water content as a result of e.g. improper storage or other adverse influences, which is reflected by the welding behaviour and by increased spattering or formation of pores, the electrodes may be re-dried at 100-120ºC for one hour. Electrodes in special packaging (f.i. HILcans) can be used without re-drying and holding in a drying oven within a period of 8 hours after opening. After that the electrodes can be re-dried in accordance with the table above.

Handling, storage, drying cored wires

Unalloyed and low-alloyed cored wires are less sensitive to moisture pick-up since a metal sheath mainly covers the internal core. Nevertheless, it is possible that the working environment affects the low hydrogen characteristics. For storage we recommend the same conditions as mentioned for stick electrodes (typical storage conditions for stick electrodes). For re-drying we suggest that you re-dry the wires at 150ºC / max. 24 h.

Stainless steel cored wires are more sensitive to moisture pick up. Therefore, the spools are vacuum packed. Storage facilities and re-dry procedures are the same as for unalloyed and low-alloyed cored wires. For stainless steel cored wires we kindly ask you to pay extra attention to removing the spools at the end of the working period and storing them in a conditioned area. In case of need you can re-dry the wires at 150ºC / max. 24 h.

Handling, storage, drying fluxes for submerged arc welding
We recommend that you store welding fluxes at a constant temperature in a conditioned area, thus avoiding moisture pick-up. The shelf life of welding fluxes can be max. three years if stored properly. Flux in damaged packaging should be used or repacked immediately. To ensure crack-free usage, fluoride-basic fluxes should be dried before use. Re-drying can be avoided in the case of usage directly from undamaged, airtight packaging.

TYPICAL REDRYING GUIDELINES SUB-ARC WELDING FLUXES			
Production method	**Re-drying recommended**	**Re-dry temperature ºC**	**Re-drying time (hours)**
Agglomerated flux	Yes	300	2 - 4
Fused	Yes	200	2 - 4

Re-dry temperatures as mentioned in the table above are considered to be guidelines only. Re-drying in multiple sequences is possible within the mentioned re-drying time. Fluxes that are not used immediately after re-drying should be stored in a heated area or in an airtight packaging such as hermetically sealable drums. Storage temperature of the heated area should be around 150ºC; max. storage period is 30 days. We recommend using a re-drying oven where special care should be taken not to overheat the flux.