

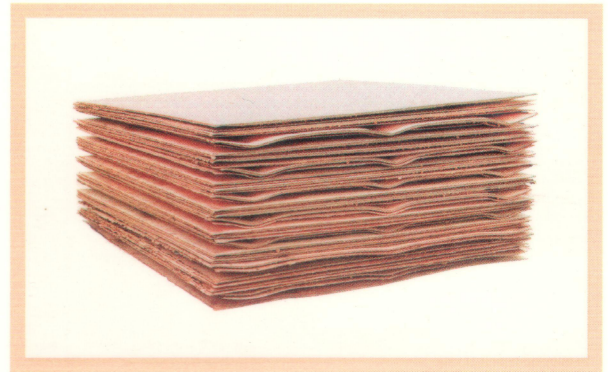
# United Metals Co.

United Metals Company, has taken the initiative and installed 120,000 MT per year continuous cast copper rod plant in collaboration with Southwire, USA. This is the largest plant throughout the Middle East and North Africa. United Metals Company is located in 10<sup>th</sup> Ramadan city, 60 km. East of Cairo with expressways linking to major ports of Mediterranean and Red Sea. Egypt, highly ranked for its positive economic growth, language & culture links has become a gateway to business in the Arab countries. With the globalization of world economy only the best companies will survive and to meet this objective. United adopt an aggressive approach towards their mission, which is

**" TO PROVIDE PRODUCT AND SERVICE OF SUPERIOR QUALITY AND VALUE THAT MEETS AND EXCEEDS THE EXPECTATIONS OF OUR CUSTOMERS"**

## Raw Material

LME registered GRADE 'A' Copper Cathodes (Meeting ASTM B - 115 Specifications) are used as Raw Materials are imported from internationally reputed producers of high grade copper. All incoming raw materials are tested to ascertain the chemical composition as required by ASTM B-49-92. Chemical composition analysis are performed to ensure the best quality in the end product. About 120.000 tons of copper per year can be converted into continuous cast rod of 8mm diameter.



## Product Process

### **AUTOMATED PRODUCTION**

The plant operates continuously and is largely automated. Melting, casting, rolling and other steps in the production process are monitored automatically using computerized equipment .

The copper cathodes are charged into melting furnace by the skip charger. The level of copper inside the furnace is monitored and controlled by automatic control system employing a video camera. The furnace uses ( Natural Gas) as fuel. The firing system is automatic and can be controlled from the computerized control room. The molten metal characteristics is controlled automatically by infra red CO analyzer to measure and adjust the amount of oxygen content in the molten stream of copper. The molten metal is transferred from the melting furnace to the holding furnace then to casting machine through launders. The flow of the molten metal is controlled by means of computerized programmable controller for metal pouring system utilizing a closed circuit television camera (CCTV), and video sensor



# Quality Control

All important parameters are continuously tested to provide quality product. The following tests below ensure the rod produced is of consistently high quality..

1. **Oxygen test** - This determines the oxygen content in copper. An oxygen determinator (Leco Instrument) gives the amount of oxygen present in copper in ppm (parts per million).
2. **Chemical composition test** analysis for chemical composition of both the cathode and final product is done using instrument.
3. **Surface oxide measurement** -electrolytic removal of the surface oxide is used to determine the type and thickness of the oxide scale.
4. **pH measurement** - to ensure nonacid corrosion free soluble oil using pH meters.
5. **Gas analysis** - solutions used in soluble oil and pickling solution are analyzed for alcohol content using a chromatography instrument.
6. **Conductivity** - precision instrument measures the conductivity of copper.
7. **Twist test** - the rod is twisted back and forth ten times each and is then visually inspected.
8. **Elongation & Tensile test** - the rod is tested for elongation at fracture and for tensile strength.
9. **Diameter checks** - these guarantee that the rod are correctly round and of the required diameter.

## Packing

The copper rods shall be supplied in coils of 3500kg weight. The coils shall be packed on strong wooden pallets, firmly secured by four steel straps and covered by thick sheet of polyethylene.



# Finishing Products

No.	Description Of Test	Test Result
1	Specifications	ASTM B49-92
2	Copper Min. %	99.99
3	Oxygen (ppm)	250-350
4	Diameter (mm)	8+/- 0.38
5	Tensile strength Max (N/mm <sup>2</sup> )	230
6	Tensile Elongation Min % (250mm)	40.0
7	Electrical Conductivity Min (IACS %)	101
8	Surface Quality	Clean & Free From Imperfection
9	Packing Condition	ASTM B49-92

