

Electrode Manufacturing Process

Product **QUALITY** and **CONSISTENCY** is assured via our *ISO procedures* and *Total Quality Management Systems* being applied at every step of the process.

1. SIZING, MILLING AND SCREENING

The highest quality raw materials, coal-tar pitch and needle coke, are crushed, milled, screened and sifted.

2. WEIGHING

Materials are precisely batched and weighed.

3. BINDER PITCH ADDED

Various binders are selectively added.

4. MIXING AND HEATING

Materials are carefully mixed and heated.

5. EXTRUSION

Hot blended mix is extruded by a hydraulic press into cylindrical shaped "green electrodes" then cooled.

6. BAKING

Shaped electrodes are baked in computer-controlled oven at predetermined time-temperature cycles for specific size and grade requirements.

7. PITCH-IMPREGNATION

Electrodes are impregnated with a specific quality of pitch to increase their strength, density and electrical conductivity.

8. REBAKING

Pitch-impregnated electrodes are rebaked to complete the carbonization process.

9. GRAPHITIZATION

High-heat longitudinal furnaces convert the carbon electrodes to graphite – aligning their molecular properties – to help ensure uniform and maximum performance of electrodes.

10. CNC MACHINING

Computer controlled machining operations produce exact tolerances for electrodes and nipples – meeting our ISO and NEMA, JIS and IEC industrial standards or perfect joints.

11. GAUGING, INSPECTION AND TESTING

Electrodes are carefully inspected throughout the manufacturing process and at completion – using computerized processes to eliminate human error. Samples are then tested to ensure final quality, consistency and uniformity.

12. PACKAGING AND SHIPPING

Electrodes and nipples are carefully wrapped, labeled, crated and boxed for safe arrival.

