

# AMCT11 TESTING METHODS OF CERAMICS

## UNIT-1 TESTING OF RAW MATERIALS

- 1.1 Sampling methods
- 1.2 Coning and quatering
- 1.3 Measurement of moisture content by IR moisture balance
- 1.4 Speedy moisture test- .
- 1.5 Particle size analysis
- 1.6 Sieve test, sedimentation method
- 1.7 Stokes, Andreasen Pipette, sedigraph,
- 1.8 Laser diffraction, x-ray broadening, and light scattering.
- 1.9 Determination of surface area by permeametry, adsorption

## UNIT-2 TESTING OF PHYSICAL PROPERTIES

- 2.1 Plasticity- Pfefferkorn test, Atterberg test,
- 2.2 Casting- Control of casting slips- fluidity, thixotropy, specific gravity, contraction
- 2.3 Wet to dry, dry to fired, wet to fired, modulus of rupture-
- 2.4 Vitrification- density- porosity- water absorption.

## UNIT-3 TESTING FOR GLAZE

- 3.1 Measuring coherence parameter- pick up
- 3.2 Testing of viscosity of glazes at low temperatures and high temperatures
- 3.3 Test for the solubility of lead frits
- 3.4 Glaze fit- hardness testing
- 3.5 Glaze thickness- autoclave and crazing
- 3.6 Thermal shock measurement.

## UNIT-4 TESTING FOR REFRACTORIES

- 4.1 Refractoriness- RUL- cold crushing strength
- 4.2 Permanent linear change on reheating- spalling resistance-
- 4.3 Reversible thermal expansion-
- 4.4 Thermal conductivity- creep- thermal shock resistance
- 4.5 Hot modulus of rupture- slag resistance test.

## UNIT-5 QUALITY CONTROL

- 5.1 Introduction- basic concepts- Indian standards for ceramic materials
- 5.2 ISO 9000- zero defects- concept quality marking and certification scheme-
- 5.3 Total quality management in ceramic industries.

### References Books:

1. D.Ganguli, S.Kumar, Elements of Ceramics –Vol II, Indian Institute of Ceramics, 1984.
2. Hiraoki Yanagida, The Chemistry of Ceramics, John Wiley and Sons, 1996.
3. Juran J.M and Gryna F.M, Quality Control Handbook, McGraw Hill Book Co., 1988.