Paints and their allied products like varnishes, enamels, pigments, printing inks and synthetic resins protect assets from corrosion. These are increasingly being used in automotive, engineering and consumer durable sectors. Paint testing can be done in a number of different ways. The fact of the matter is that many industries use several different paint testing methods in order to ensure accurate results. Paint should be tested in a wet form for particular properties but also in the dry form. Testing of paints generally falls into three categories: testing of the raw materials, testing of the finished product and performance testing using accelerated weathering and other simulation type methods of evaluation. Coatings technologists deal with interfaces of all classes gas liquid as in an aerosol spray liquid liquid, as in an emulsion gas solid, as in a dry pigment before its immersion in a vehicle liquid solid, as in a pigment dispersion and solid solid, as when the crystal faces of two different pigment particles are in tight contact. Paint scientists are particularly interested in the formation of liquid solid interfaces that are stable in the package, that is, in the permanent replacement of the air at the air solid interface of the pigment by the vehicle to give the liquid solid interface of the dispersion. In coatings and similar products, the criteria for best performance particulate ingredients; inorganic, organic, extender and metallic flake pigments and dispersed phase of latexes depends on the size and shape of particles composing the particulate materials. The purpose of paint testing is to help and ensure that the minimum requirements for ingredients and material characterization are met by the manufacturer on a batch basis, and to help ensure that the formulated product will provide satisfactory performance in the environment.

Handbook on Paint Testing Methods explains about aspect of gloss, specular glass, sheen, contrast gloss, absence of bloom gloss, distinctness of image gloss, specular gloss evaluation, specular reflectance, geometric considerations, instrumentation, goniophotometers, specular glossmeters, basic factors producing hiding power, refractive indexes of white pigments, refractive indexes of organic pigments, films for testing preparation of films for test, pigments and extenders, metallic flake pigments, latexes, methods for determining particle, treatment of data, particle size with light microscope etc.

This handbook elaborates the different testing methods of paints with an understanding of the various tests that can be performed on product performance. This handbook will be very helpful to its readers who are related to this field and will also find useful for upcoming entrepreneurs, existing industries, technical institution, etc.
1. OPTICAL PROPERTIES COLOUR AND LIGHT

2. GLOSS

3. HIDING POWER

4. MASS COLOR AND TINTING STRENGTH

5. PHYSICAL PROPERTIES
   Density, Specific Gravity, Density of Liquids with Pycnometer, Procedure, Weight Per Gallon, Specific

6. VISCOSITY AND CONSISTENCY


7. SURFACE ENERGETICS

Free Interfacial Energy, Wetting, Surface Tension, Surface Tension Measurements, Capillary Rise Method, Maximum Bubble Pressure Method, Drop-Weight Method, Ring Method, Other Methods, Contact Angle, Shadow Method, Tilting Plate Method, Displacement Cell Method

8. PARTICLE SIZE MEASUREMENT

Pigments and Extenders, Metallic Flake pigments, Latexes, Methods for Determining Particle, Treatment of Data, Particle Size with Light Microscope, Direct Measurement Method, Reticle Method, Dark Field Technique, Particle Size with Electron Microscope, Particle Size by Sieving, Hand Sieving, Machine Sieving, Particle size by Sedimentation, Gravity Sedimentation, Centrifugal Sedimentation, M-S-A Particle Size Analyzer, Sedimentation by Ultracentrifuge, Particle Size by Photometry, Transmission Methods, Spectrophotometric Techniques, Angular-Dependence Techniques, X-ray Scattering, Particle Size by Elutriation, Thompson Classifier, Roller Particle Size Analyzer, Felvartion, Particle Size from Surface Area, Adsorption of Gas, Adsorption of Solutes, Soap Titration Method, Permeation Method, Electronic Size Analyzer, Particle Size and Thickness of Metallic Flake Pigments, Coarse Particles, Sieve Method, Galilee-Parritt Apparatus, Dunn Test, Thin-Film Drawdown for Oversize Particles, Dunn Texture Test for Dry Pigments, North Standards, Fineness-of-Dispersion Gages, X-ray Microradiography Technique

9. OIL ABSORPTION OF PIGMENTS


10. FILMS FOR TESTING PREPARATION OF FILMS FOR TEST


11. MEASUREMENT OF FILM THICKNESS

Wet Film Thickness, Inmont Wet Film Gage, Pfund Wet Film Gage, Tooth Gages, Needle Micrometer, Dry Film Thickness, Machinists’ Micrometer, Gardner Needle Thickness Gage, Gardner Carboloy Drill Thickness Gage, Gardner Gage Stand, Gardner Micro-Depth Gage, Microscope for Film Thickness, Magnetic Thickness Gages, Inductance Thickness Gage, Eddy-Current Thickness Gage, General Electric Gage, Type B, Elcometer, Minitecator, Gardner Scratch Thickness Gage, Profile Measurement, Keane-Tator Surface Profile Comparator, Elcometer Surface Profile Gage

12. DRYING TIME


13. MECHANICAL PROPERTIES OF FILMS

HARDNESS AND RELATED PROPERTIES


14. ABRASION RESISTANCE


15. ADHESION

16. FLEXIBILITY
Definition, Interpretation, External Factors Affecting Flexibility, Humidity, Temperature, Strain Rate, Determination of Flexibility, Mandrels, T-Bend, Cupping Tests, Forming Tests, Impact Tests, Cold Crack, Exposures

17. TENSILE STRENGTH AND ELONGATION
Definition, Interpretation, Determination, Specimen Preparation, Tension Testing Machines, Film Mounting, Controlled Conditions Cabinets, Reproducibility, Predicting Durability

18. CHEMICAL PROPERTIES OF FILMS

19. CHEMICAL RESISTANCE

20. FIRE RETARDANCE AND HEAT RESISTANCE

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