ASTM International Thermal Methods

Keywords: compositional analysis, crystallization, cure, decomposition, dielectric analysis, differential scanning calorimetry, dynamic mechanical analysis, electrical properties, expansion, glass transition, heat capacity, kinetics, melting, metals and alloys, modulated differential scanning calorimetry, modulus, oxidative stability, petroleum and petroleum products, polymers (thermoplastic), polymers (thermoset), pressure differential scanning calorimetry, purity, thermogravimetric analysis, thermomechanical analysis

TN021

Tabulated below is a list of American Society for Testing and Materials International (ASTM) standards that use thermal analysis or rheology. All methods are copyright, and available directly from ASTM or through the ASTM website.

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100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Tel: 610-832-9585
Fax: 610-832-9555
Email: http://www.astm.org

Method	Title
D2116-02	FEP - Fluorocarbon Molding and Extrusion Materials
D3159-04	Modified ETFE-Fluoropolymer Molding and Extrusion Materials
D3222-05	Unmodified Poly(Vinylidene Fluoride) (PVDF) Molding Extrusion and Coating Materials
D3275-05	E-CTFE Fluoroplastic Molding and Extrusion Materials
D3307-04	PFA - Fluorocarbon Molding and Extrusion Materials
D3350-05	Polyethylene Plastic Pipe and Fitting Materials
D3386-05	Coefficient of Linear Thermal Expansion of Electrical Insulating Materials
D3418-03	Transition Temperatures of Polymers by Thermal Analysis
D3850-00	Rapid Thermal Degradation of Solid Electrical Insulating Materials by Thermogravimetric Methods
D3895-04	Oxidative Induction Time of Polyolefins by Thermal Analysis
D4000-04	Identification of Plastic Materials
D4065-01	Determining and Reporting Dynamic Mechanical Properties of Plastics
D4066-01A	Nylon Injection and Extrusion Materials
D4092-01	Definitions and Description of Terms Relating to Dynamic Mechanical Measurements of Plastics
D4101-05A	Polypropylene Plastic Injection and Extrusion Materials
D4181-00	Acetal (POM) Molding and Extrusion Materials
D4419-90	Transition Temperatures of Petroleum Waxes by Differential Scanning Calorimetry
D4441-04	Aqueous Dispersion of Polytetrafluoroethylene
D4473-03	Dynamic Mechanical Cure Behavior of Plastics
D4485-05A	Specification for Performance of Engine Evaluation of Diesel Engine Oil
D4565-99	Physical and Environmental Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable
D4591-01	Temperatures and Heats of Transition of Fluoropolymers by DSC
D4742-02A	Polymer Matrix Composite Materials
D5028-96	Curing Properties of Pultrusion Resins by Thermal Analysis
D5483-02e1	Oxidative Induction Time of Lubricating Greases by PDSC
D5885-04	Oxidation Induction Time of Polyolefin Geosynthetics by PDSC

D5967-05	Evaluation of Diesel Engine Oils in T-8 Diesel Engine
D6186-98	Oxidation Induction Time of Lubricating Oils by PDSC
D6370-99	Rubber Compositional Analysis by TGA
D6375-99A	Evaporation Loss of Lubricating Oils (NOACK) by TGA
D6382-99	DMA and TGA of Roofing and Waterproofing Membrane Materials
D6483-04	Evaluation of Diesel Engine Oils in T-9 Diesel Engine
D6580-00	Metallic Zinc Content in Both Zinc Dust Pigment and in Cured Films of Zinc-Rich Coatings (by DSC)
D6604-00	Glass Transition Temperatures of Hydrocarbons by DSC
D7156-05	Evaluation of Diesel Engine Oils in T-11 Diesel Engine
D7211-05	Specification for PCTFE Machined Parts
E0473-04	Terminology Relating to Thermal Analysis
E0487-04	Constant Temperature Stability of Chemical Materials
E0537-02	Thermal Stability of Chemicals by DSC
E0698-05	Arrhenius Kinetic Constants for Thermally Unstable Materials
E0793-01	Heats of Fusion and Crystallization by DSC
E0794-01	Melting and Crystallization Temperatures by Thermal Analysis
E0831-05	Linear Thermal Expansion of Solid Materials by TMA
E0928-03	Purity by DSC
E0967-03	Temperature Calibration of DSCs and DTAs
E0968-02	Heat Flow Calibration of DSCs
E1131-03	Compositional Analysis by TGA
E1142-04	Terminology Relating to Thermophysical Properties
E1231-01e1	Hazard Potential Figures-of-Merit for Thermally Unstable Materials
E1269-05	Specific Heat Capacity by DSC
E1356-03	Glass Transition Temperatures by DSC and DTA
E1363-03	Temperature Calibration of TMAs
E1545-00	Glass Transition Temperatures by TMA
E1582-04	Temperature Scale Calibration of TGAs
E1640-04	Glass Transition Temperature by DMA
E1641-04	Decomposition Kinetics by TGA
E1782-03	Vapor Pressure by DSC and DTA
E1824-02	Glass Transition Temperature by TMA in Tension
E1858-03	Oxidative Induction Time of Hydrocarbons by DSC
E1860-02	Time Base Calibration of Thermal Analyzers
E1867-01	Temperature Calibration of DMAs
E1868-04	Loss-on-Drying by TGA
E1877-00	Thermal Endurance of Materials from TGA Decomposition Data
E1952-01	Thermal Conductivity and Diffusion by MDSC®
E1953-05	Description of Thermal Analysis Apparatus
E1970-01	Statistical Treatment of Thermal Analysis Data
E2008-04	Volatility Rate by TGA
E2009-02	Oxidation Onset Temperature by DSC
E2038-99	Temperature Calibration of DEAs
E2039-04	Dielectric Properties by DEA
E2040-03	Mass Calibration of TGAs
E2041-03	Borchardt and Daniels Kinetics by DSC
E2046-03	Reaction Induction Time by DSC

E2069-00	Temperature Calibration on Cooling of DSCs
E2070-03	Isothermal Kinetics by DSC
E2071-00	Heat of Vaporization
E2092-04	Distortion Temperature in 3-Point Bending by TMA
E2113-04	Length Change Calibration of TMAs
E2160-04	Heats of Reaction by DSC
E2161-01	Terminology Relating to Validation
E2206-02	Force Calibration of TMAs
E2253-03	Enthalpy Measurement Validation of DSCs
E2254-03	Storage Modulus Calibration of DMAs
E2347-05	Indentation Softening Temperature by TMA
E2402-05	Mass Loss and Residue Measurement Validation of TGAs
E2403-04	Sulfated Ash of Organic Materials by TGA
E2425-05	Loss Modulus Conformance of DMAs
F1579-02e1	PAEK Polymers for Surgical Implant Applications
F1987-01	Specification for Multilayer Pipe
F2004-05	Transformation Temperatures of Nickel-Titanium Alloys
F2005-05	Terminology for Nickel-Titanium Shape Memory Alloys
F2026-02	PEEK Polymers for Surgical Implant Applications
F2150-02e1	Biomaterial Scaffolds Used in Tissue-Engineered Medical Products

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