FT-IR Sample Handling

Sample Types Index, Methods, and Ratings

RATINGS

Excellent | Good | Adequate

KEY

* capable of being ground
† incapable of being ground

		Transmission	Transmission – IR Microscope	Diffuse Reflectance	Diffuse Reflectance – Si Carb Sampler	Diffuse Reflectance – IR Microscope	ATR	ATR – IR microscope	Specular Reflectance	Specular Reflectance – IR Microscope
Solids	Thermoplastic Polymers (can be melted)									
	Thermoplastic Polymers (can't be melted)									
	Soluble Polymers									
	Thin Polymer Films									
	Thick Polymer Films									
	Flat, Smooth Polymers *									
	Flat, Smooth Polymers †									
	Irregularly Shaped Polymers *									
	Irregularly Shaped Polymers †									
	Thin, Dark Polymer Films									
	Thick, Dark Polymer Films									
	Layered Polymer Films									
	Thin Polymer Film on Reflective Substrates									
	Thick Polymer Film on Reflective Substrates									
	Organic Powders									
	Adhesives									
	Rubber									
	Thin Fibers									
	Thick Fibers									
	Surface Analysis									
Liquids	Free-Flowing Aqueous Solutions									
	Other Free-Flowing Liquids									
	Viscous Liquids									
Gas	Gases (ppb to 100% concentration)									

Index of Sample Types

POWDERS – organic and inorganic solids that can be ground into a powder (2–5 micron particle size); Examples: chemicals, pharmaceuticals, crystalline materials, pigments, fibers, polymers and powders

THERMOPLASTIC POLYMERS – polymers that can be pressed into free-standing thin films

SOLUBLE POLYMERS – polymers that can be dissolved in a solvent or cast as a thin film

THIN POLYMER FILMS – free-standing polymer films that are not thermoplastic or soluble and are less than 50 microns thick

THICK POLYMER FILMS – free-standing polymer films that are not thermoplastic or soluble and are more than 50 microns thick

REGULARLY SHAPED POLYMERS – polymers, films, and plaques that are hard or soft with a smooth surface, capable of being ground, not thermoplastic or soluble and regularly shaped

REGULARLY SHAPED POLYMERS – polymers, films, and plaques that are hard or soft with a smooth surface, incapable of being ground, not thermoplastic or soluble and regularly shaped

IRREGULARLY SHAPED POLYMERS – polymers that are hard or soft with a rough or uneven surface, capable of being ground, not thermoplastic, or soluble and irregularly shaped; Examples: formed polymers, polymer beads and pellets

IRREGULARLY SHAPED POLYMERS – polymers that are hard or soft with a rough or uneven surface, incapable of being ground, not thermoplastic or soluble and irregularly shaped

THIN, DARK POLYMERS – carbon-filled polymers high in inorganic content that are not thermoplastic or soluble and less than 10 microns thick, such as carbon black

THICK, DARK POLYMERS – carbon-filled polymers high in inorganic content that are not thermoplastic or soluble and more than 10 microns thick

LAYERED POLYMER FILMS – polymers that contain two or more layers or thin or thick films; Examples: layered paints and packaging materials

THIN POLYMER FILM ON REFLECTIVE SUBSTRATE – polymer film on any kind of surface that reflects IR energy (usually metal) that is less than 15 microns thick; Examples: lubricants on hard disk media and layers on silicon wafers

THICK POLYMER FILM ON REFLECTIVE SUBSTRATE – polymer film on any kind of surface that reflects IR energy (usually metal) that is more than 15 microns thick; Examples: coatings on containers (such as soda cans)

ADHESIVES – solid adhesives like tapes and solid glues

RUBBERS – irregular-shaped rubber items that are not thermoplastic or soluble; Examples: o-rings, gaskets, and fittings

THIN FIBERS – thin and bundled fibers

THICK FIBERS – thick and bundled fibers

SURFACE ANALYSIS – for qualitative analysis of the outermost layer of any solid or film

FREE-FLOWING AQUEOUS SOLUTIONS – liquids that contain any amount of water; Examples: inks, dyes, solvents, and paints

OTHER FREE-FLOWING LIQUIDS – liquids that do not contain water

VISCOUS LIQUIDS – thick liquids, pastes, and emulsions; Examples: polyols, greases, and heavy oils

GASES (PPB TO 100% CONCENTRATION) – any sample that is a gas at room temperature or slightly above room temperature

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