

Disk Drive Industry Services



Higher Storage Densities Equate to Lower Tolerable Contamination Levels

Higher storage densities have pushed the concentration levels of micro-contaminants that a drive can tolerate to very low levels. Ionic, organic, or particulate contaminants can ultimately cause drive failure. Ionic contaminants can lead to corrosion of pole tip or media. Organic contamination can cause stiction at the head/disk interface. Particulate contamination can cause disk damage, disk scratching, head crashes and eventually, unrecoverable data erasure.

Potential sources of these contaminants include gloves, consumable packaging material, vapors or aerosols, surfactants, adhesives, motor parts, flexible circuit, mold releasing agents, plasticizers, oils from the motor, Media, disk heads, filters, clean-room air, and processing tools. With over 20 years of experience in the disk drive industry, Balazs[™] can assist you in locating and eliminating these potential sources of contamination in your components, your manufacturing process and in your clean-room.

Applications and Analytical Techniques

At Balazs, highly trained analysts use several different techniques to identify contaminants. Using outgassing tests, Balaz can identify problematic organic high-boiling compounds (e.g., silicones, plasticizers, antioxidants, organophosphates, hydrocarbons, etc.) which tend to adhere to disk drive surfaces. We also offer dynamic head-space thermal desorption GC-MS (DH-TD-GC-MS) for the analysis of organics out-gassed from assembled drives (while running), and for other applications.

Using an extraction technique combined with IC, ICP-MS, or GC-MS analysis, Balazs can identify ionic contaminants, metals, and polar organic compounds (e.g., anions, amines, organic acids) from disposable and reusable materials, and components. As the industry leader in trace level (ppb and ppt) analysis, Balazs can analyze your processing fluids such as UPW and chemicals.

For cleanrooms, Balazs can assist you in identifying a baseline, establishing a routine monitoring system, and in analyzing anything used in your cleanroom. Through our quality analytical services, we can help you with your QA, QC, Failure Analysis, materials selection, R&D and vendor qualification issues.

Applications and Analyses for the Disk Drive Industry

Organic Outgassing by DH-TD-GC-MS
<ul style="list-style-type: none">■ Outgassing whole disk drive while running■ Media desorption for QC or Failure Analysis■ Outgassing adhesives, gas, flex circuits, motors, bearings, etc.
Components: Extraction and Outgas Test
<ul style="list-style-type: none">■ Ambient or elevated temp. extraction (85°C default) -■ IC for anions, amines & organics acids from adhesives, gaskets, e-coats, motors, and disposables■ ICP-MS for metals from media■ GC-MS for extractable contaminants
Chemicals
<ul style="list-style-type: none">■ Trace contaminants in acids, bases, solvents, polymers, photoresist
Thin Films and Microcontamination
<ul style="list-style-type: none">■ Film contamination or composition by wet and surface analysis
Disposables and Reusables
<ul style="list-style-type: none">■ Extractables and outgassing gloves, wipes, swabs, garments, shippers, carriers, and plastics and packaging materials
Ultrapure Water (UPW)
<ul style="list-style-type: none">■ Contaminants measured: trace metals, ions, TOC, silica, bacteria, particles, and purgeable organics■ Balazs created UPW specifications
Cleanrooms
<ul style="list-style-type: none">■ Baseline & routine monitoring for acids, bases, organics, silicones, phthalates and phosphates■ Efficiency tests of carbon or acid removal filters■ Outgassing of cleanroom materials: floors, curtains, HEPA's, etc.■ Surface contamination on work surfaces or witness disks■ Materials compatibility