Leveraging Seagate Full Material Disclosure Process into Conflict Minerals and Beyond…

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Seagate compliance incorporates supplier full disclosure, with third party data review and audit. Software automation is used to gather and manage data.

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**Seagate**

- **STX approves supplier Part**

**Supplier**

- **Supplier prepares IPC form and supporting documentation**
- **Supplier submits IPC form and supporting documentation to seagateipc@seagate.com**

**Compliance Software**

- **Logic Check**
- **Compliance Check**
- **Weekly report generated to report approval status**
- **DONE: IPC/supporting documents Successfully submitted**
- **Supplier notified of report progress through weekly report**

**Outsourced Business Processes**

- **3rd party provides regular training to assist Suppliers to prepare submissions to CAS System**
- **3rd party provides basic technical support to assist Suppliers to prepare submissions to CAS System**
- **3rd party checks and audits IPC and supporting documentation**
- **3rd party reviews weekly reports and submittal history with Seagate**
By investing early in full disclosure data, Seagate has been able to flatten the ‘sawtooth' in resource requirements.

Seagate invested in CAS* system and developed full disclosure (Bill of Substances) strategy to deal with changing requirements.

“sawtooth” is less pronounced, overall resources required reduced as compared to other compliance strategies. Resource trend is almost flat. Why? Because Seagate collects full content data up front, and software is used to grade against new specifications.

Seagate effectively manages substance restrictions at low cost and resource levels.

Seagate is able to respond quickly to changing substance restrictions.

Goal: collect more data at lowest possible cost
Communication is Key: Streamlining Supply Chain Communication

- Use standard tools when available
  - IPC 1752 for product material content (IEC, JAMP)
  - EICC-GeSi Conflict Minerals Template

- When no standard available, use Excel
  - Why? Everyone has it and knows how to use it; easy to copy and paste from existing data

- Avoid portals and intermediaries
  - Why? They require training, maintenance, retyping data entry (think 5000 data cells on hundreds of products), 3rd party NDAs, they restrict access to data, nonstandard…
History of Supplier Communication Standards

- **IPC1752: A Pioneer in the Industry**
  - Adobe Acrobat based (Rev 1)
  - Request/response mode vs. Distribute mode
  - XML Schema only (Rev 2)
    - No user interface specified or provided (except SourceForge Scriba)
    - Resulted in nonstandard 3rd party portals, for-profit solutions

- **EICC-GeSI Conflict Minerals Reporting Template: a Tool Done Right!**
  - No request mode (good thinking)
  - Excel user interface, built-in data checker
  - No cost
  - Free roll-up tool
Future of Supply Chain Communications

• Standards are not keeping up with needs

• Need information on allocated GHG emissions, water consumption, process chemical consumption, waste effluents, sources of plastics, recycled content of materials, modes of transportation, explosive dust risks….

• What to do?
  - Excel spreadsheet for data gathering
  - XML enabled
  - Comprehensive internal IT structure for data uptake, analysis, and communication
Bonus Slides
Example of Seagate HDD LCA Impacts
Notebook HDD LCA from 2011*

*LCA performed by WSP Environment and Energy, 3rd party reviewed by Earthshift
Carbon Footprint: Greenhouse Gases

Greenhouse Gases in the Atmosphere

- Carbon Dioxide: 63%
- Methane: 18%
- Nitrous Oxide: 6%
- Other GHGs: 13%

(Source: Lester Brown, Plan B 4.0)
Sources of GHGs

• Carbon Dioxide
  – Electricity generation*
  – Heating
  – Transportation

• Methane
  – Agriculture
  – Rice cultivation
  – Permafrost melting

• Nitrous Oxide
  – Nitrogenous fertilizer

*Burning of fossil fuels
*Accounts for 40% of total US carbon emissions
Electrical Energy in the US

US Electricity Sources

- Renewables: 17%
- Coal: 43%
- Nuclear: 17%
- Natural gas: 8%
- Other nonrenewable: 15%

Source: Energy Manager Today
Electric Motorcycle
Gyro stabilization, 120 mph max, 200 miles on a charge

Lit Motors C-1