Measuring Seagate’s Chemical Footprint

Joanne Larson
Staff Program/Project Manager
Product Sustainability
5 December 2017
Measuring Seagate’s Chemical Footprint

Joanne Larson
Staff Program/Project Manager, Product Sustainability and Compliance
Seagate Technology
5 December 2017
Seagate is a Digital Storage Company
Global Operations and Technology

Operational Excellence

Design → Plan → Source → Make → Deliver → Service
Seagate Global Presence

- Waterloo, Canada
- Beaverton, OR, USA
- Fremont, CA, USA
- Cupertino, CA, USA
- Valencia, CA, USA
- Longmont, CO, USA
- Colorado Springs, CO, USA
- Oklahoma City, OK, USA
- Shakopee, MN, USA
- Bloomington, MN, USA
- Rochester, MN, USA
- Houston, TX, USA
- Round Rock, TX, USA
- Guadalajara, Mexico
- São Paulo, Brazil

- Danderyd, Sweden
- Dublin, Ireland
- Springtown, N. Ireland
- Paris, France
- Havant, UK
- Maidenhead, UK
- Munich, Germany
- Amsterdam, Netherlands
- Moscow, Russia

- Korat, Thailand
- Teparuk, Thailand
- Johor, Malaysia
- Penang, Malaysia
- Shugart, Singapore
- Woodlands, Singapore
- Sydney, Australia

- New Delhi, India
- Pune, India
- Bangalore, India
- Beijing, China
- Tokyo, Japan
- Taipei, Taiwan
- Hong Kong, China
- Wuxi, China
- Shenzhen, China
- Chengdu, China
- Shanghai, China
- Tianjin, China
Seagate Business Continuity Planning

Operational Resilience in all Foreseeable Circumstances

**Enterprise Risk Planning**
- Business Impact Analysis
- Risk Elimination/Mitigation
- Response & Recovery Plans

**Supplier Risk Planning**
- Geo-Location Diversity
- Risk Mitigation Measures
- Response & Recovery Plans

**Global Monitoring**
- Threat Surveillance
- Action Triggers
- Stakeholder Communication
Seagate Sustainability
Draft Materiality Assessment Results
Comprehensive Sustainability

Sustainability at Seagate Encompasses Three Aspects

**Sustainability:**

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.
Seagate’s Sustainability Priorities

Analyze, report, and reduce impacts across Seagate’s operations and product portfolio

PRODUCT AND OPERATIONAL SUSTAINABILITY
Continuous Streams of Data that are Always On

COMPLIANCE
Evaluate and ensure compliance with the EICC’s Code of Conduct, with committed non-regulatory standards, and all regulations of geographies in which Seagate does business

EMPLOYEE ENGAGEMENT
Create an environment encouraging and supporting employees’ participation in sustainability endeavors
Seagate Sustainability Highlights

Expertise, Authenticity, Humility and Transparency Assures our Credibility and our Message

**Bill of Substances**
Publishing select bills of substances offers product material content transparency while protecting suppliers’ confidentiality.

**Full Materials Disclosure (FMD)**
With over a decade’s experience with product FMD, Seagate is designing and implementing its second generation FMD, and introducing its automated Conflict Minerals and Process Chemistry management tools.

**Electronic Industry Citizenship Coalition**
Commitment to the EICC Code of Conduct and the standards on social, environmental and ethical issues in the electronics industry.

**United Nations Global Compact**
Commitment to the UNGC and the ten universally accepted principles on human rights, labor, environment and anti-corruption.

**Life Cycle Analysis (LCA)**
Seagate publicly posts product and packaging LCA results, and actively engages in customer and stakeholder discussions sharing results and the data.

**Supply Chain**
Seagate actively engages with our Supply Chain partners in driving sustainable business practices throughout the supply chain.

**Global Citizenship Annual Report**
Annual publically available report on governance and ethics, product and environmental sustainability, employees, supply chain and community engagement.

**Regulatory Compliance**
Seagate management systems and programs support compliance to local regulatory requirements.
Seagate Supply Chain Awards and Recognition

Leading the Industry

Ranked by Gartner for Supply Chain Excellence

#16 of all Supply Chains (2015)
#20 of all Supply Chains (2014)
First and only HDD Supply Chain to be recognized by Gartner

Ranked by Supply Chain Management World

#7 of High Tech Industry (2014)
#5 of 77 Breakthrough Supply Chains (2014)

Ranked by Supply Chain Insights

#4 in EMEA (2014)
Top 4 Industrial Supply Chains to Admire (2014)

Seagate Supply Chain has been benchmarked by more than 20 Fortune 500 Companies. Companies use our processes as a standard of reference.
Sustainability Awards and Recognition

Leading the Industry

HPE 2016 Corporate Responsibility Achievement Award

Acer 2015 CSR Partnership Award

Highlighted in BizNGO’s Guide to Safer Chemicals for Full Materials Disclosure

Huawei 2014 Green Partner Certification

Seagate Sustainability and associated processes has been highlighted by CUSTOMERS, NON-GOVERNMENTAL ORGANIZATIONS (NGOs), and REGULATORS
Seagate’s Compliance Assurance System
Compliance Assurance System (CAS) History

CAS: Full Materials Disclosure (FMD)
10,000 requests per year
Conflict Minerals (3TG) on different system
CAS2 launched February 14
Integrates all areas into one tool
Introducing CAS2… An Industry First

- All follow common workflow
- Automates entire process
- 15,000+ active Seagate parts
- 30K supplier parts
- Rigorous assessment of data
- Process chemistry industry first
Solving Tough Challenges

Suppliers
- FMD, Conflict Minerals Reporting Template, process chemistry

CAS2
- Product Bill of Materials
- Parts and supplier list

Seascape

Seagate CAS2 Officer
- Manage compliance status
- Compliance Reports

Customers

Product Data Hub
- Parts and supplier list
FMD – IPC1752A format

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Conflict Minerals Reporting Template (CMRT)

Select Language Preference Here:
- English

The purpose of this document is to collect sourcing information on tin, tantalum, tungsten and gold used in products. Mandatory fields are noted with an asterisk (*). Consult the instructions tab for guidance on how to answer each question.

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<th>Company Information</th>
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</tr>
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<td>Company Unique ID Authority:</td>
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<td>Phone - Contact (*):</td>
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Process Chemistry Template

Copy of V2 ProChem declaration example - ex 3 media 100442523.xls [Compatibility Mode] - Excel

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<th>D</th>
<th>E</th>
<th>F</th>
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<td>Process Name</td>
<td>Category or group name</td>
<td>Material Name</td>
<td>Amount per subproduct unit</td>
<td>UOM(default mg)</td>
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<td>EC #</td>
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<td></td>
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MRPRO(TM) Data collection for process chemicals by chemical categories version 3.02 Dated 3 March 2016
CALCULATING SEAGATE’S CHEMICAL FOOTPRINT
The CoHC Count Method
Our FMD system makes this a possible

Full Materials Disclosure (FMD)
With over a decade’s experience with product FMD, Seagate is designing and implementing its second generation FMD, and introducing its automated Conflict Minerals and Process Chemistry management tools.

• Evaluate CoHCs against FMD database
• How did Bill do this? How will Joanne do this?
• Count the number of unique CASRN to arrive at Seagate’s Chemical Footprint
• Mass-based calculation: pilot with one representative product
The Total Mass Method

Mapping our product sales to CoHC supplier disclosures

Approach:
Map product ST Models from our FMD system to substances, multiply substance mass in each PN by total number of each ST Model number shipped.

Current Challenges:
Hundreds of product ST Model numbers present mapping challenges between product lines and CoHCs. Next year we will perform the Total Mass Method on a single product/product line/line of business.
The Power of Seagate’s Compliance Assurance System, ‘CAS2’
Segment of ‘Item Report’ generated for FMD:

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‘Item Report’ as basis for Mass calculations

See next slide
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<th>Mass in Each Material (g)</th>
<th>Exemption</th>
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Business Value of CFP
CFP Business Value to Seagate

Building Industry Focus on Responsible Chemical Management

- Market and regulatory requirements drive Seagate’s priorities
- Investor focus underpins internal chemical management initiatives
- Objective measurement allows tracking and improvement
- Provides a communication tool to our stakeholders
- Fosters support for materiality priorities:
  - Chemical Management
  - Supply Chain Management
  - Occupational Health and Safety
  - Emissions, Effluents, and Waste
  - Responsible Sourcing
  - Conflict Minerals
  - Transparency and Reporting
Vertical integration of design strategy favors technology advancements, data management and application tuning.
Operational Excellence — Plan Overview

Sales, Inventory, and Operations Planning (SI-OP)

- Demand Planning
- Supply Planning
- Opportunities Report
- Consumption Report
- Demand/Supply Review
- SI&OP

Fundamental to predictable financials

Improved confidence for meeting customer demand

Decision transparency and ownership

Streamline and reduce number of meetings
Operational Excellence — Source Overview
A Supply Chain that Balances Suppliers, Logistics, Risk, Cost and Quality

Integrated Supply Chain Enables Efficient, Sustainable Operation Across Device and System

- Own and operate 10 manufacturing sites in 7 countries on 3 continents
- Enabled by best-in-class procure to pay model
- Rely on over 8000 supply partnerships
- Integrate over 45 billion parts per year
Operational Excellence — Make Overview

Make Best Quality Storage Products for the Human Experience

Be The Best HDD and Systems Manufacturer Rated by Customers for our product quality, technical excellence and innovative solutions.
Operational Excellence — Deliver Overview

Improving How We Serve Our Customers with Delivery

Seagate Aims for Perfect Order Delivery

• Ensure perfect order delivery to customers against their demand each and every time

• In full, on time, in perfect condition and accurate

Design Plan Source Make Deliver Service

1400 active freight lanes using ocean, air, rail and truck

More than 210,000 Kg/day shipped

Greater than 98% on time delivery

24x7 monitoring, support and scheduling of customer orders
Operational Excellence - Service Overview

Seagate Services Focuses on Customer Success

**OPERATIONAL EFFICIENCY**

Highest priority is integration quality and field reliability is excellence with our OEMs, Partners

**REDEFINE HOW DATA RECOVERY IS OFFERED**

10 worldwide recovery services locations provide > 80% recovery rate

**LEVERAGE SEAGATE’S STORAGE EXPERTISE**

More than 3,000 daily customer service contacts through phone, email
Seagate's Materiality Assessment

Project Objective, Outcomes and Impacts

**Project Objective:** Conduct a materiality assessment to identify, confirm, and prioritize issues that are most important to business success and stakeholders, with specific focus on understanding the management of these issues.

**Project Outcomes**

**More Clarity**
- Identification of priority sustainability issues—for achievement of business strategy and sustainability
- Clear understanding of sustainability trends and stakeholder priorities

**More Alignment**
- Shared understanding by relevant functions and business leaders on potential sustainability priorities
- Consistency between reporting and strategy
- Alignment of 2017 GCAR with new GRI Standards

**Project Impacts**

- Resource and support projects and programs that have the most measurable, positive impact on society and the environment, while ensuring Seagate's long-term success and differentiation from competitors
- Focus sustainability strategy, reporting, and stakeholder engagement efforts on opportunities for greatest impact on global challenges (such as climate change), and where stakeholder expectations are highest
Reading the Materiality Map
The prioritization matrix is divided into four quadrants to help guide the business approach to addressing each topic. The position of each topic represents its relative importance to stakeholders and the business.

- **Important to Stakeholders**: Communicate and Engage as Appropriate
- **Significant to Business and Stakeholders**: Focus for investment/impact
- **Management Topics**: Manage, Comply, & Monitor
- **Important to Business**: Pursue for business (rather than sustainability) value
Issue Breakdown: Overall

Overall, the primary issues most relevant to business success are of high importance to stakeholders. Seagate should develop a strategy to implement relevant initiatives to address the material issues within its operations and across its supply chain.

- The top 10 issues greatly align with the top priorities of stakeholders, which will provide impactful once integrated into an updated CSR strategy.
- Seagate should consider how the material issue prioritization will change in importance over time given the expansion and closing of manufacturing sites, Seagate’s new strategy, and the transition to more cloud based products.
- Identify the internal tools and procedures that will aid in measuring impact and progress in context of the material issues, and what tools and policies will be most effective for engaging with suppliers.

<table>
<thead>
<tr>
<th>Key Themes / Narratives</th>
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<table>
<thead>
<tr>
<th>Top 10 Issues</th>
<th>Bottom 10 Issues</th>
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<tbody>
<tr>
<td>1. Energy</td>
<td>1. Biodiversity</td>
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<tr>
<td>2. Chemicals Management</td>
<td>2. Transport</td>
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<tr>
<td>3. EICC Compliance</td>
<td>3. Local Market Presence</td>
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<td>5. Transparency and Reporting</td>
<td>5. Export Controls</td>
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<td>7. Lifecycle impacts of products and services</td>
<td>7. Indigenous Rights</td>
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<td>8. Child Labor</td>
<td>8. EMF</td>
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<tr>
<td>10. Supply Chain Management</td>
<td>10. Intellectual Property Rights</td>
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Thank You