

NSF/GCI 355:
*Greener Chemicals and Processes Information
Standard*

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NSF/GCI 355:
Greener Chemicals and Processes Information Standard
Version r1.22 (draft)

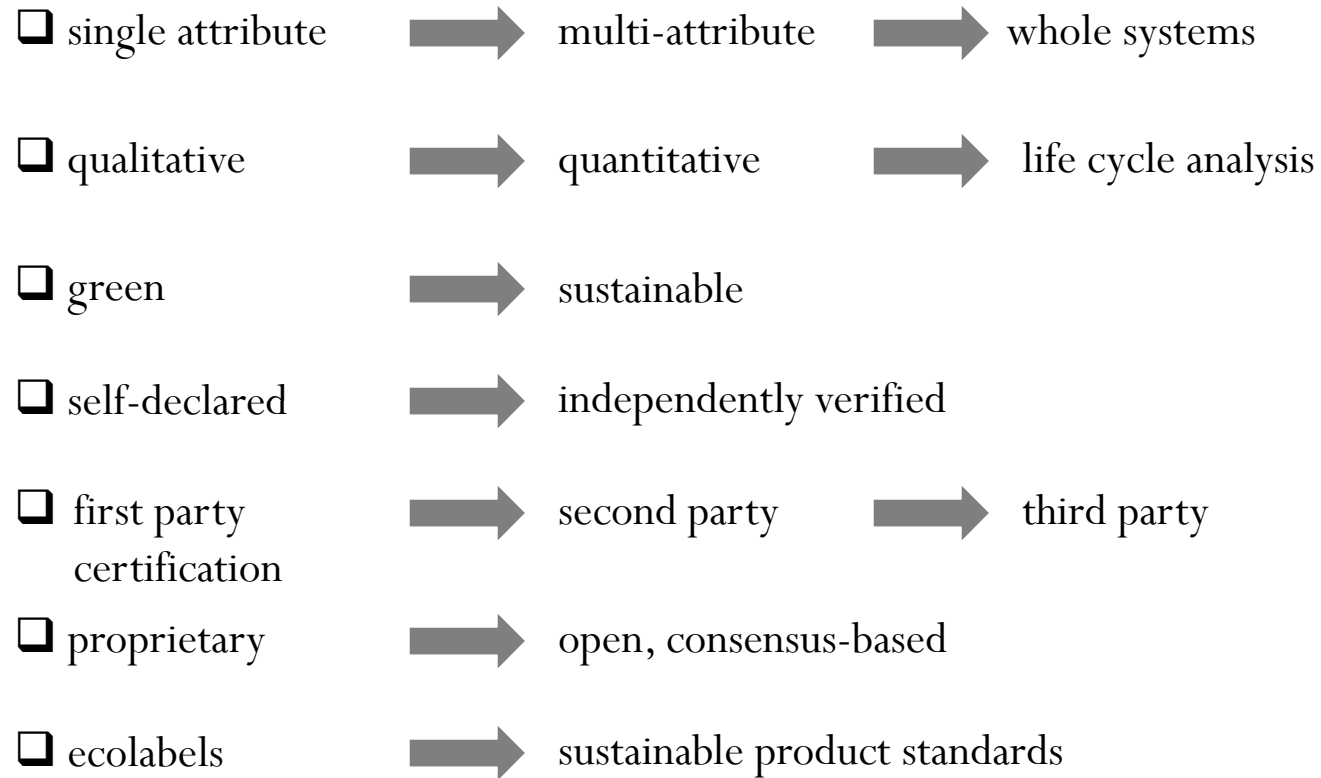
☐ Sponsors:

- ❖ American Chemical Society - Green Chemistry Institute®
- ❖ NSF International – accredited ANSI standards developer; secretariat

☐ Timeline:

- ❖ March 2009 – formal launch of Standard development
- ❖ September 17, 2010 – version r1.22 releases for public comment period (60 days)
- ❖ November 17, 2010 – close of public comment period
- ❖ December 2010 to January 2011 – final balloting (internal)
- ❖ January 2011 – publication of the Standard

Progression of Green certifications



Brief Summary of Standards Development Process

- ACS-GCI opts to develop an open, consensus-based ANSI standard
- ACS-GCI partners with NSF International:
 - ❖ Accredited ANSI standards developer
 - ❖ 2nd and 3rd Party Auditing Services
- Sponsors file *Project Initiation Notification* (PIN) with ANSI (i.e. 355); published in *Standards Action*
- Identify stakeholders (directly and materially affected interest groups)
- Formalize Joint Committee
 - ❖ Balanced representation: chemical manufacturers; fabricators/formulators; public health/regulatory, and user
- Development Phase: Joint Committee develops content through workgroups by consensus (balloting)
- Ballot and Public Comment Phase
- Comment Circulation and/or Re-ballot
- Publication of final Standard in *Standards Action* (ANSI)

Why an ANSI Standard?

(American National Standards Institute)

- Open
 - Any directly and materially affected interest group (stakeholder)
 - Balance and lack of dominance (Formula)
 - Consideration of views and objections
- Consensus-based
- Transparent
- Due process
 - Right to express position and have it considered
 - Appeal process
- Accreditation of standards developers: Standardized principles & procedures
- Coordination & Harmonization
- ISO member body for the United States of America
- Requires review of an ANSI standard every 5 years (unless under “continuous maintenance”)

Further key aspects of an ANSI Standard

❑ Voluntary

- Not a regulation (mandatory)
- Decision to use Standard is at the discretion of the User (based on motivating drivers)

❑ Conformance

- Once the decision is made to use the Standard.
 - User MUST conform to ALL *normative* language
 - Following *informative* language is OPTIONAL
- The User is that organization that is conforming to the Standard, i.e. meeting the normative requirements of the Standard.

❑ Certification

- Certification that the User has conformed to the Standard may be:
 - First-party (self-certification)
 - Second-party
 - Third-party (independent certification)

Purpose

- ❑ Provide the chemical enterprise with a voluntary and standardized way to facilitate business-to-business communication on the human and ecosystem impacts (“greenness”) of a chemical product and process over its life cycle.

- ❑ Define and report the following in a clear, transparent and consistent manner:
 - Primary categories of information pertaining to “greenness”
 - Their respective data elements, and
 - Data quality objectives
 - Standardized reporting format

- ❑ The Standard further stipulates reporting a minimum set of social responsibility criteria that are applied the product and process claiming conformance.

- ❑ Assist downstream users to each reduce the environmental footprint of the chemical product and chemical process in a socially responsible manner.

Scope and Boundaries

- ❑ Information Standard
 - Not itself a methodology to evaluate “greenness”
 - Rather provides information for downstream recipients to make evaluations, decisions
 - Based on life-cycle thinking; not a Life Cycle Assessment (LCA)
 - Addresses environmental (ecological), human health, and social responsibility aspects

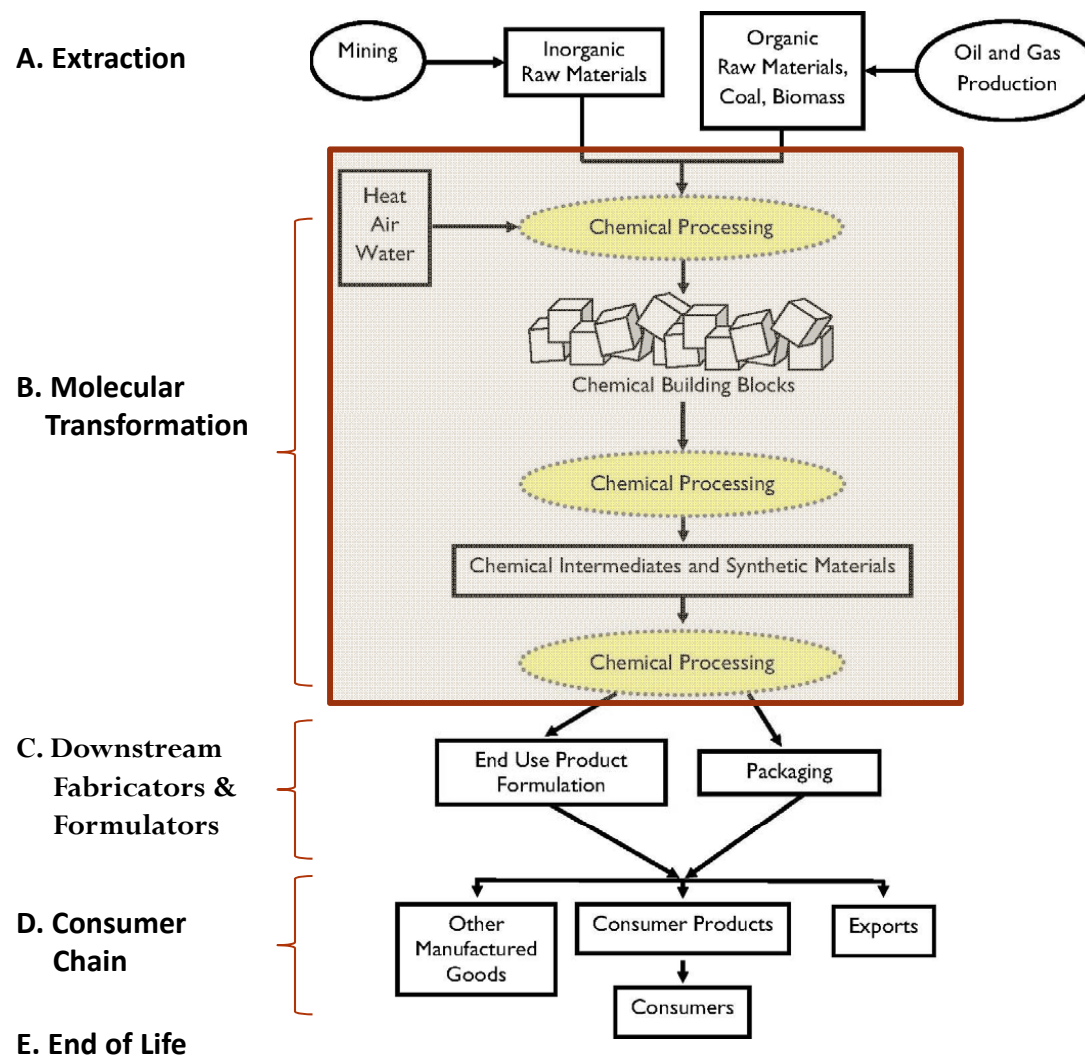
- ❑ Gate-to-Gate boundaries: molecular transformation

- ❑ Business-to-Business communication
 - Intended user: Chemical manufacturer (primarily molecular transformers)
 - Intended recipient: Downstream fabricator/formulator

- ❑ Chemical PRODUCT plus the *final transformation* PROCESS (at a minimum)

- ❑ FACILITY (ies) where the product undergoes the final transformation process
 - Global locations

Gate-to-Gate Boundary: Molecular Transformation



Source: NSF/GCI 355, r1.22

4.2.2 Product Identification

The manufacturer of the product seeking conformance shall specify information essential to the purchaser or user of the product as sold. At a minimum this essential information shall include:

1. Identify trade name of chemical product

2. Report Chemical Abstract Numbers and percentage range – standard composition (as sold) including total impurities

3. Identify by Chemical Abstract Numbers of intentionally added constituents down to 1000 ppm:
 - a. If tests were performed on the product as sold, the identity of intentional constituents does not need to be declared.
 - b. If test data is not for the product as sold, the identity of intentionally added constituents in the commercial product [or product as sold] shall also be reported.

Primary Data Categories

Product-Level

Chemical Characteristics

Tier 1

- Human Health Effects
- Ecological Effects
- Physical Safety Properties

Tier 2

- Endocrine Disruption

Process-Level

Chemical Processes

Materials & Waste

- Process Mass Efficiency
- Recycled/Reused inputs
- Waste generation

Water

- Use
- Consumption
- Discharge

Energy

Process Safety

Bio-Based Carbon Content

Innovation

Facility-Level

Social Responsibility

Human Rights

- Child Labor
- Forced Labor
- Compliance

Society Performance Indicators [OPTIONAL]

Policy Considerations

- ANSI Standard as a policy instrument
- Stakeholder composition and participation
- Terms and Conditions
 - Ambiguity of “green”, “sustainable”
 - Specificity of “Green Chemistry” and “12 Principles of Green Chemistry”
- Standardization of “Green Chemistry”
 - “Operationalizing” the 12 Principles of Green Chemistry
- Drawing the line between “known” and emerging”
- Gray area between “information” and “evaluation”
- Addressing the “data gap”
- Implementation

Thank You!

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