Exponent®

Lost in Translation: How "Harmonized" is GHS Across Jurisdictions?

SCHC Annual Meeting 2026

October 6, 2026

Kyle Wilson, Jessica Lin

© 2026 Exponent, Inc. | Privileged & Confidential

Speakers



Kyle Wilson

Managing Scientist

Chemical Regulation and Food Safety



Jessica Lin

Senior Scientist

Occupational and Health Sciences

© 2026 Exponent, Inc. | Privileged & Confidential

Agenda



- Overview of Globally Harmonized System (GHS)
- GHS Implementation: Where Adoptions Diverge (US, Canada, EU REACH)
- Classification Examples
- Confidential Business Information
- Common Pitfalls
- Best Practices / Key Takeaways

© 2026 Exponent, Inc. | Privileged & Confidential

Learning Objectives

- Recognize how the Globally Harmonized System (GHS) is not globally harmonized
- Identify regulatory differences among OSHA HCS, CCOHS WHMIS, and EU REACH CLP that impact SDS classifications
- Review jurisdiction specific classification differences
- Understand how trade secret disclosure requirements differ among varying jurisdictions
- Apply best practices to manage jurisdiction specific requirements in global SDS authoring

© 2026 Exponent, Inc. | Privileged & Confidential

Globally Harmonized System of Classification and Labeling of Chemicals (GHS)



© 2026 Exponent, Inc. | Privileged & Confidential

Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

- Developed by the United Nations in 1992
- Harmonized system for classification and labeling of chemicals covering health, physical, and environmental hazards
- Provides basis for harmonized regulations related to handling chemical materials on a global scale
- Elements adopted by OSHA and other regulatory bodies to classify and communicate hazards based on common criteria
- Revisions every two years
- Total revisions: **11**
- Most current revision year: **2025**

© 2026 Exponent, Inc. | Privileged & Confidential

Guiding Principles

- Target Audience
  - **Consumers**
  - **Workers**
  - **Transport Workers**
  - **Emergency Responders**
- Information should be understandable for all target audiences
- Labels, symbols, and safety data sheets encourage correct handling and use of chemicals
- Hazard classifications should incorporate existing test data

© 2026 Exponent, Inc. | Privileged & Confidential



GHS Implementation: Where Jurisdictions Diverge

© 2026 Exponent, Inc. | Privileged & Confidential

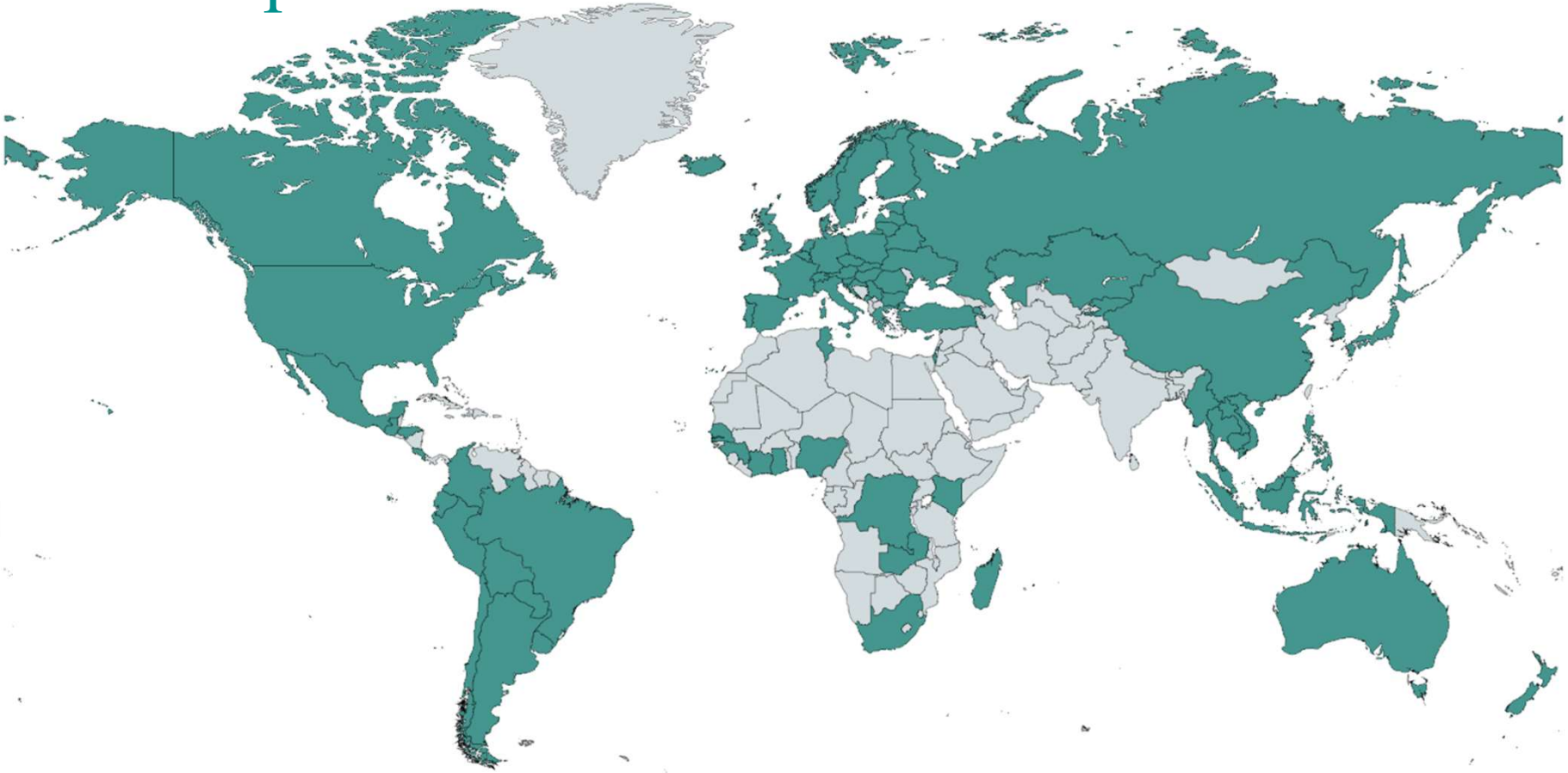
Globally Harmonized System (GHS)

- GHS currently on **Revision 11** (**2025**).
- Countries can determine which of the building blocks of the GHS they wish to adopt.
- This allows for flexibility based on the needs and requirements of that jurisdiction.
- When a jurisdiction adopts a building block, the coverage should be consistent.



© 2026 Exponent, Inc. | Privileged & Confidential

GHS Implementation



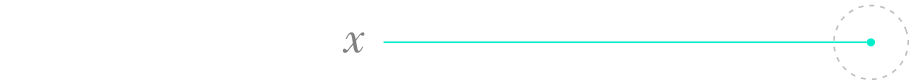
There are currently **84** countries that have adopted parts of GHS.

© 2026 Exponent, Inc. | Privileged & Confidential

Adoption in the US, Canada, and EU

Jurisdiction	Primary framework	SDS / classification relationship
United States	OSHA 2024 Hazard Communication Standard (29 CFR 1910.1200)	GHS-based workplace hazard communication
Canada	Amended WHMIS (2022) / Hazardous Products Regulations (HPR)	GHS-based, with Canadian-specific hazard classes and disclosure rules
European Union	EU REACH + CLP Regulation	GHS-based, CLP governs classification/labeling; REACH governs SDS requirements

© 2026 Exponent, Inc. | Privileged & Confidential



OSHA HCS vs GHS

© 2026 Exponent, Inc. | Privileged & Confidential

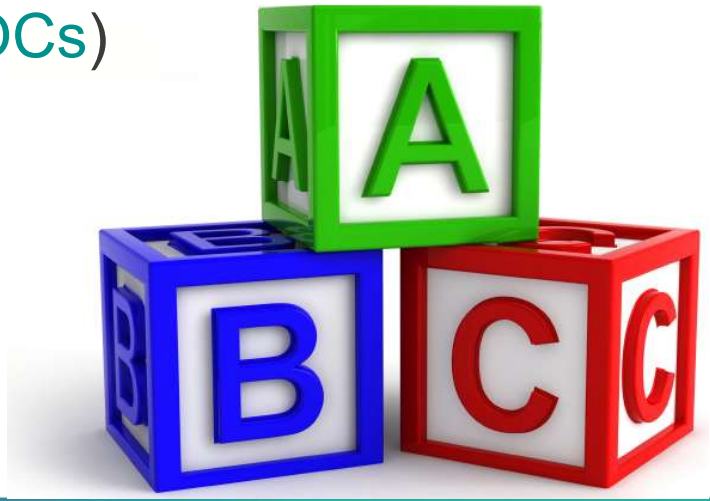
OSHA HCS

- Occupational Safety and Health Administration (**OSHA**) Hazard Communication Standard (**HCS**), 29 CFR 1910.1200 has gone through five major revisions since its creation in 1983.
- Amended in 2012 to align with **GHS Rev. 3** (**OSHA 2012 HazCom**).
- Current 2024 version is intended to align OSHA primarily with **GHS Rev. 7**, while incorporating some provisions from later GHS revisions (**OSHA 2024 HCS**).
- Updated hazard classifications, labels, SDS requirements (**Sections 2, 3, and 9**), and trade-secret concentration provisions.

© 2026 Exponent, Inc. | Privileged & Confidential

OSHA HCS

- Building blocks excluded are:
  - All Environmental Hazard Classes
  - Acute Toxicity Category 5
  - Skin Corrosion/Irritation Category 3
  - Aspiration Hazard Category 2
- Hazards Not Otherwise Classified (HNOCs)



© 2026 Exponent, Inc. | Privileged & Confidential

Hazards Not Otherwise Classified (HNOCs)

- Defined in **29 CFR 1910.1200(c)** as evidence-based physical or health effects found through scientific evidence during evaluation.
- Covers risks that fall below cutoff concentration limits or belong to GHS categories OSHA has not adopted.
- Information must be included in Section 2 (Hazard(s) Identification) of the SDS.
- HNOC information on the label is not mandatory.

© 2026 Exponent, Inc. | Privileged & Confidential

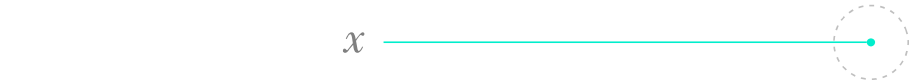
OSHA Defined Hazards

- Pyrophoric G
  - DANGER – Flam
    - Catches fire neously if expos



- Simple Asphyxiant
  - Warning – No pictogram
    - May displace oxygen and cause rapid suffocation
- Combustible Dust
  - Warning – No pictogram
    - May form combustible dust concentrations in air [if small particles are generated during further processing, handling, or by other means.]
    - May form explosible dust-air mixture [if small particles are generated during further processing, handling, or by other means.]

© 2026 Exponent, Inc. | Privileged & Confidential



CCOHS WHMIS vs GHS

© 2026 Exponent, Inc. | Privileged & Confidential

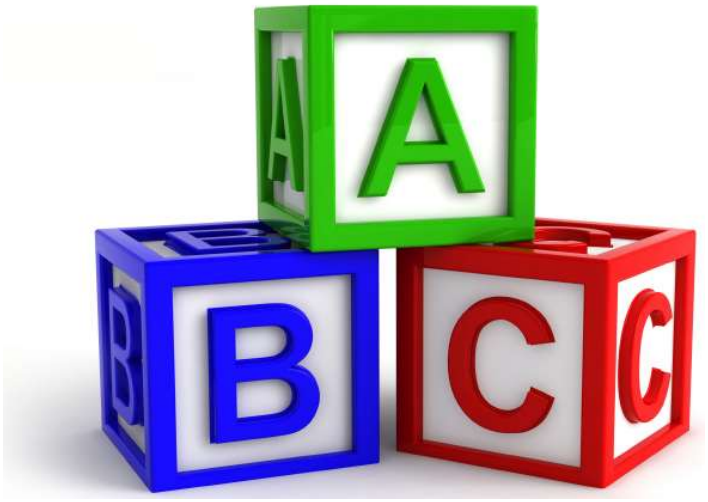
CCOHS WHMIS

- Canadian Centre for Occupational Health and Safety (**CCOHS**) Workplace Hazardous Materials Information System (**WHMIS**) introduced in 1988.
- Amended in 2015 to align with **GHS Rev. 3** (**WHMIS 2015**, now **Former WHMIS**).
- Current 2022 version is intended to align WHMIS primarily with **GHS Rev. 7**, while incorporating some provisions from later GHS revisions (**Amended WHMIS**).
- Updated hazard classifications, labels, and SDS requirements.

© 2026 Exponent, Inc. | Privileged & Confidential

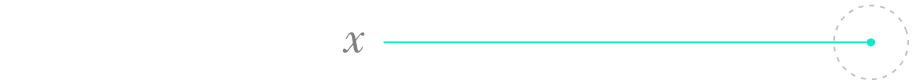
CCOHS WHMIS

- Building blocks excluded are:
  - Explosives Hazard Class
  - Desensitized Explosives Hazard Class
  - All Environmental Hazard Classes
  - Acute Toxicity Category 5
  - Skin Corrosion/Irritation Category 3
  - Aspiration Hazard Category 2



- Biohazardous Infectious Materials
- Health Hazards Not Otherwise Classified (**HHNOC**)
- Physical Hazards Not Otherwise Classified (**PHNOC**)

© 2026 Exponent, Inc. | Privileged & Confidential



EU REACH CLP vs GHS

© 2026 Exponent, Inc. | Privileged & Confidential

EU REACH & CLP

- European Union's (**EU**) Registration, Evaluation, Authorisation, and Restriction of Chemicals (**REACH**) (EC No 1907/2006)
- Classification, Labeling and Packaging (**CLP**) (EC No 1272/2008) aligned with **GHS Rev. 2**
- EU has aligned with **GHS Rev. 7** through various Adaptations to Technical Progress (ATPs)
- EU notified World Trade Organization (**WTO**) in August 2026 of a draft alignment of CLP with **GHS Rev 8, 9, & 10** and parts of **GHS Rev 11**.

© 2026 Exponent, Inc. | Privileged & Confidential

EU REACH CLP



- Building blocks excluded are:
  - Flammable Liquids Category 4
  - Acute Toxicity Category 5
  - Skin Corrosion/Irritation Category 3
  - Serious Eye Damage/Eye Irritation Category 2A and 2B
  - Aspiration Hazard Category 2
  - Acute Hazards to Aquatic Environment, Category 2 and 3

© 2026 Exponent, Inc. | Privileged & Confidential

EU REACH CLP

- Section 1 title: "Identification of the substance/mixture and of the company/undertaking"
  - **Compared to GHS Section 1 title: "Identification"**
- Classification of listed ingredients: Specific Section 3 requirement under EU REACH but not required by Annex 4 of the purple book (**GHS**)
- European Union Hazard (**EUH**) Classes - Hazard statements carried through from Dangerous Substances Directive (**DSD**) and Dangerous Preparations Directive (**DPD**), which are not yet included in the GHS are codified as 'EUH'
- ECHA Harmonised Classification (**CLH**) are official binding classifications for certain hazardous substances under CLP
  - **Compared to self and industry classifications**

© 2026 Exponent, Inc. | Privileged & Confidential

Classification Examples

© 2026 Exponent, Inc. | Privileged & Confidential

Classification Variations – Jurisdiction Specific

- Methylisothiazolinone (MIT) (CAS 2682-20-4)
  - **EU REACH CLP**
    - Harmonised: Skin Sens. 1A; C ≥ 0.0015%
- Benzisothiazolinone (BIT) (CAS 2634-33-5)
  - **EU REACH CLP**
    - Harmonised: Skin Sens. 1A; C ≥ 0.036%
- MIT & BIT
  - **US OSHA, CCOHS WHMIS**
    - Not classified unless present at ≥ 0.1%



© 2026 Exponent, Inc. | Privileged & Confidential

Classification Variations – Jurisdiction Specific

- Carbon Black (CAS 1333-86-4) – via inhalation
  - **EU REACH CLP**
    - Harmonised: Not classified; CLP Submission: Carc 2
  - **Health Canada**
    - Identified as a potential concern to human health
  - **US National Institute for Occupational Safety and Health (NIOSH)**
    - Potential Occupational Carcinogen
  - **US ACGIH – Not a regulatory body**
    - A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans
  - **IARC**
    - 2B - Possibly carcinogenic to humans



© 2026 Exponent, Inc. | Privileged & Confidential

Classification Variations – Jurisdiction Specific

- Quartz silica (CAS 14808-60-7) – via inhalation
  - **EU REACH CLP**
    - Harmonised: Not classified; CLP Submission: STOT-RE 1, Carc 1A
  - **Health Canada Hazardous Substances Assessment**
    - Carc 1A, STOT-RE 1
  - **NTP**
    - Known to be a human carcinogen
  - **US ACGIH – Not a regulatory body**
    - A2 – Suspected Human Carcinogen
  - **IARC**
    - Group 1 – Carcinogenic to Humans

© 2026 Exponent, Inc. | Privileged & Confidential

Classification Variations – Jurisdiction Specific

- Styrene (CAS 100-42-5)
  - **EU REACH CLP**
    - Harmonised: Flam. Liq. 3, Repr. 2, Acute Tox 4 (Inhalation), STOT-RE 1, Skin Irrit. 2, Eye Irrit. 2
  - **Health Canada Hazardous Substances Assessment**
    - Flam. Liq. 3, Carc. 1B, Acute Tox 4 (Inhalation), Asp. 1
  - **National Toxicology Program (NTP)**
    - Reasonably anticipated to be a human carcinogen
  - **US American Conference of Governmental Industrial Hygienists (ACGIH) – Not a regulatory body**
    - A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans
  - **International Agency for Research on Cancer (IARC)**
    - Group 2A - Probably carcinogenic to humans

© 2026 Exponent, Inc. | Privileged & Confidential



Confidential Business Information

© 2026 Exponent, Inc. | Privileged & Confidential

Terminology

- SDSs can mask chemical identity using one of the following forms:
  - **“Trade Secret”** or **“Proprietary”:** used instead of the specific chemical identity
  - **Generic chemical name:** a descriptive chemical family or chemical class name that provides information about the substance without revealing the specific identity
  - **Approved alternative chemical name:** a jurisdiction-specific substitute name that may need regulatory approval before use

Generic or Alternative Chemical Names

- **EU** and **Canada** do not allow the use of the terms "**trade secret**" or "**proprietary**", a generic or alternative chemical name is required for masking chemical identity.
- Generic or alternative chemical name:
  - Developed by individuals familiar with chemical nomenclature and jurisdiction-specific requirements
  - Includes information about the chemical nature of the substance without revealing the specific identity
- **EU** and **Canada** have resources for developing an acceptable generic or alternative chemical name.
- **US** does not require use of a generic or alternative name on the SDS where trade secret protection is used.

Confidential Submission Processes

- **EU REACH CLP**
  - To request use of an alternative chemical name for a substance in a mixture, the request must be:
    - Prepared in the latest version of IUCLID; and
    - Submitted to ECHA through REACH-IT
  - Specific hazard classes restricted
- **CCOHS WHMIS**
  - To file a claim for confidential business information on an SDS, an application must be made under the Hazardous Materials Information Review Act (HMIRA)
  - No restriction on hazard classes

EU REACH CLP Eligible Hazard Classes

Hazard classifications eligible for use of an approved alternative chemical name under CLP Article 24 and Annex I, Section 1.4.1

- Acute toxicity, Category 4
- Skin irritation, Category 2
- Eye irritation, Category 2
- Specific target organ toxicity — Single exposure, Category 2 or 3
- Specific target organ toxicity — Repeated exposure, Category 2
- Hazardous to the aquatic environment — Chronic, Category 3 or 4
- Any physical hazards listed in CLP Annex I, Part 2

Concentration Ranges

- **US**: Prescribed concentration range used must be the narrowest range possible, but if the exact concentration range does not fit into one of the prescribed concentration ranges, a single range created by the combination of two applicable consecutive ranges may be disclosed instead
- **Canada**: If the concentration of a hazardous ingredient falls within more than one of the prescribed concentration ranges, then any one of the prescribed concentration ranges that the actual concentration falls within may be used on the SDS
- **EU**: As an alternative to providing concentrations as exact percentages, a range of percentages may be submitted applicable to hazardous components of major concern and other hazardous components or components not classified as hazardous
- **Note**: Some jurisdictions require the sum of all ingredients in Section 3 to add up to 100%, including non-hazardous ingredients (**Australia**)



Common Pitfalls

© 2026 Exponent, Inc. | Privileged & Confidential

Common Pitfalls in Global SDS Authoring

- Applying one jurisdiction's requirements globally
- Misinterpreting classification criteria
- Incorrect or incomplete precautionary statements
- Inadequate consideration of local disclosure requirements
- Inconsistencies between SDSs, labels, and product formulations
- Inability to balance confidentiality with hazard communication

© 2026 Exponent, Inc. | Privileged & Confidential



Best Practices / Key Takeaways

© 2026 Exponent, Inc. | Privileged & Confidential

Best Practices / Key Takeaways

- Review all applicable legislation for SDS specific jurisdiction
- Rely on trained SDS authors
- Review software generated SDSs and ensure parameters are set correctly
- Continued education and training
- Leverage existing knowledge bases
  - SCHC Annual Meeting
  - SCHC Membership resources
  - SCHC Members

Thank You



Kyle Wilson

Managing Scientist

Chemical Regulation and Food Safety

kwilson@exponent.com



Jessica Lin

Senior Scientist

Occupational and Health Sciences

linj@exponent.com

© 2026 Exponent, Inc. | Privileged & Confidential