



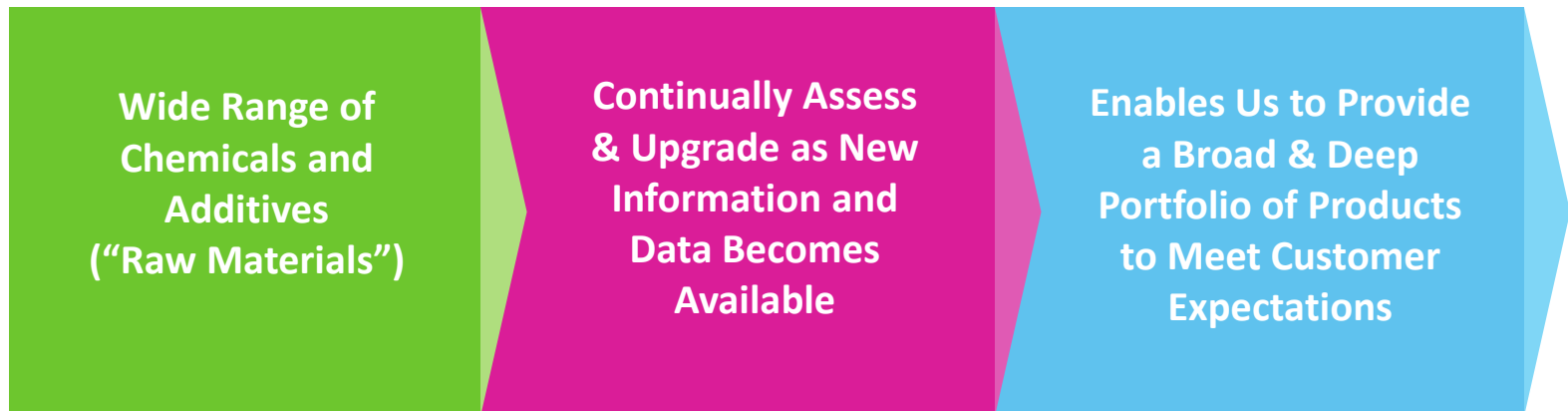
HOUGHTON™

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

Moving towards a world-wide system for
communicating chemical hazards in the workplace

Our Commitment To EHS

- Houghton is committed to meeting all environmental, health and safety (EHS) and product regulatory requirements in the markets we serve, including the Globally Harmonized System (GHS).
- Houghton International Inc. is a global market leader in metalworking fluids and related value-added technical services. Our broad and deep portfolio provides many options that allow us to meet application/performance, regulatory, EHS and other customer specific requirements world-wide.



What is GHS?

- A common approach, developed by the U.N., to classifying the hazards of chemicals used in industry. It's purpose is to communicate this hazard information on product labels and safety data sheets.
- Provides an underlying framework to establish national, comprehensive chemical safety programs for those countries that subscribe.



An International Mandate

- GHS is a world-wide initiative adopted at the United Nations Conference for Environment and Development in 1992 in Brazil.
- The standard is voluntary; participating countries are allowed to adopt all or only portions of the standard.
- Each country has to establish its own regulatory framework and implementation timeline.
- While GHS is a major improvement towards a single standard, there will still be specific regional/country regulatory differences – so not truly harmonized.



Key Benefits of GHS

- GHS was developed to:
 - *Enhance the protection of humans and the environment using standard hazard phrases and pictograms*
 - *Facilitate international chemicals trade by making it easier to export/import chemicals*
 - *Reduce redundant and costly testing and evaluation through sharing of data*
 - *Reduce the need for multiple versions of SDS and product hazard labels*



GHS Establishes a Common Global Language

Under the old systems, the same chemical could end up with very different country-specific hazard classes:

Country	Label
US, Canada, Korea & Japan	Toxic
India	Non-toxic
New Zealand	Hazardous
China	Not Dangerous
New GHS Standard	Danger (Skull & Cross Bones)



GHS results in a more effective delivery of information targeted to workers, consumers, transport workers, and emergency responders.



GHS in Europe

- *European Chemicals Agency (ECHA)* is the primary responsible agency for GHS in Europe.
 - *ECHA adopted portions of GHS (excluding e.g. some environmental standards) resulting in the new **Classification, Labelling and Packaging (CLP) Legislation.***
- ECHA has issued 6 amendments (ATPs) to the CLP legislation, additional commission regulations governing Safety Data Sheet (SDS) format and content and Guidance notes for companies and professionals.
- The legislation will continue to evolve. Known upcoming additions include ‘Endocrine Disruptors’.



Key Dates for GHS in Europe

Effective Date	Requirement(s)	Who
2010	Train employees on the new label elements and safety data sheet (SDS) format. Provide information sources such as workplace instructions, leaflets and posters.	Employers
December 1, 2010	GHS-compliant SDS and product labels for substances placed on the market after Dec 1, 2010.	Chemical manufacturers, importers, distributors and employers
June 1, 2015	GHS-compliant SDS and product labels for all mixtures placed on the market after June 1, 2015.	Chemical manufacturers, importers, distributors and employers
During transition period to the effective completion date noted above	Mixtures may comply with either CLP or the current standard (DPD), or both. SDS and Label must be consistent.	Chemical manufacturers, importers, distributors, and employers
June 1, 2015	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
June 1, 2017	GHS compliant SDS and labels for all existing products already in supply chain.	Chemical manufacturers, importers, distributors, and employers



*If you manufacture, import,
distribute, transport or use
chemicals, you will be affected!*

GHS | The Globally Harmonized System of Classification and Labeling



Transitioning to GHS

- Transitioning an organization to GHS will take time. It is NOT an overnight process.
- To become GHS compliant:
 - *Products (hazards) need to be reclassified under the new criteria;*
 - *SDS need to be re-authored into the new standardized SDS format;*
 - *New labels need to be developed for containers;*
 - *Containers need to be re-labeled to include any appropriate signal words, pictograms and hazard statements;*
 - *Employees need to be re-trained; and*
 - *Written hazard communication procedures will need to be updated.*



Four Key GHS Activities

Determine
Hazard
Classification
of Substances
and Mixtures



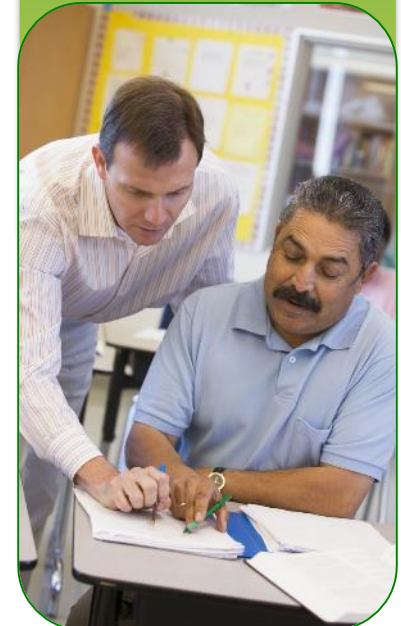
Develop
Safety Data
Sheets (SDS)



Develop
Product
Hazard Labels



Conduct
Training



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- All substances and mixtures manufactured and/or imported by Houghton International in Europe will be classified according to country/regional GHS requirements.
- Each product is classified using standard hazard classification categories which are used individually or in combination according to CLP legislation.
- Under GHS, more conservative reporting levels and new criteria have been established for the classification categories. New hazard categories (e.g. Specific Target Organ Toxicity) will also be introduced for the first time.
- As a result, the hazard classifications are **LIKELY** to change even when product formulas and test data for substances remain the same.



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GHS Hazard Categories

- ACUTE TOXICITY (Oral, Dermal, Inhalation of gases, vapors, dusts and mists)
- SKIN or EYE CORROSION/IRRITATION
- SENSITIZATION – Skin, Respiratory
- MUTAGENICITY
- CARCINOGENICITY
- TOXIC TO REPRODUCTION
- SPECIFIC TARGET ORGAN TOXICITY (single, repeated exposure)
- ASPIRATION HAZARD
- EXPLOSIVES
- GASES UNDER PRESSURE
- FLAMMABLE Liquids, Solids, Gases, Aerosols
- EMIT FLAMMABLE GASES when in contact with water – Substances, Mixtures
- SELF-REACTIVE OR SELF-HEATING (Substances, Mixtures)
- PYROPHORIC Liquids, Solids
- OXIDIZING Liquids, Solids
- ORGANIC PEROXIDES
- CORROSIVE TO METALS
- AQUATIC TOXICITY Acute, Chronic
- HAZARDOUS TO THE OZONE LAYER

Plus specific European classifications (e.g., allergen warnings)



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- The Safety Data Sheet (SDS) continues to provide hazard and precautionary information about a chemical substance or mixture under GHS.
- Primary Use: in the workplace
- Employers and workers will continue to use the SDS as a source of information when evaluating workplace hazards and determining safety precautions.



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SDS Requirements

- Follows a specified 16-section format
- Product Identifier/Name
- Name, phone number and address of manufacturer, importer or responsible party
- Specifies the hazard class and category
- For each hazard class and category assigned, uses prescribed/mandated:
 - Hazard statements(s)
 - Pictogram(s)
 - Precautionary statement(s)
 - Signal word

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SAFETY DATA SHEET

Issuing Date: 17-Apr-2014 Revision Date: 17-Apr-2014 Revision Number: 0

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Product Name: HOCUT 750 MP

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Physical Hazards

Hazard	Signal Word
Explosive	Explosive
Flammable	Flammable
Corrosive	Corrosive
Toxic	Toxic

Environmental Hazards

GHS Label elements, including precautionary statements

Signal Word: Danger

Precautionary Statements

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SDS Content Sections

1. Identification
2. Hazard(s) Identification
3. Composition/Information on Ingredients
4. First-Aid Measures
5. Fire-Fighting Protection
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transport Information
15. Regulatory Information
16. Other Information, including date of preparation or last revision




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- Includes Product Identifier (same as SDS)
- Name, phone number and address of manufacturer, importer or responsible party

Cindolube 400E



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<p>CS - PELIGRO H112 - Provoca lesiones oculares graves. H412 - Nocivo para los organismos acuáticos, con efectos nocivos duraderos. GHS09 - La exposición repetida puede provocar sequedad o formación de grietas en la piel. P201 - Leer antes de usar. P202 - Mantener alejado de la luz y el calor. P273 - Evitar su liberación al medio ambiente. P501 - Eliminar el contenido al recipiente en una zona de eliminación de residuos aprobada. Contiene Phosphoric acid, mild O-D-bis(o)-S and pentyl esters, zinc salts, highly refined, low viscosity base oil (Viscosity: *7 cSt @40°C) EC</p>	<p>Houghton Ibernia S.A. C/da Unioña 70-71A 28110 Barberá del Valle Barcelona Tel: +34 93 719 65 00 Fax: +34 93 719 65 00 H024@houghton.com Teléfono de emergencia: +34 1 700 470 3601 (Código: 332630)</p>
<p>FR - DANGERS H314 - Provoque des lésions oculaires graves. H412 - Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme. GHS09 - L'exposition répétée peut provoquer dessèchement ou fissures de la peau. P201 - Lire attentivement l'étiquette avant utilisation. P202 - Éviter l'exposition à la lumière et à la chaleur. P273 - Éviter sa libération dans l'environnement. P501 - Éliminer le contenu dans un récipient agréé. Contient Phosphoric acid, mild O-D-bis(o)-S and pentyl esters, zinc salts, highly refined, low viscosity base oil (Viscosity: *7 cSt @40°C) EC</p>	<p>Houghton S.A.S. 600, Bd. Albert Camus BP 60001 93003, St-Denis sur Seine France Tel: +33(0)1 47 62 66 00 Nº de téléphone d'urgence: (+31 700 470 3601) (Code: 332630)</p>
<p>IT - PERICOLO H314 - Provoca gravi lesioni oculari. H412 - Nocivo per gli organismi acquatici con effetti di lunga durata. GHS09 - L'esposizione ripetuta può provocare seccatura e screpolature della pelle. P201 - Leggere attentamente l'etichetta prima dell'uso. P202 - Evitare l'esposizione alla luce e al calore. P273 - Evitare il rilascio nell'ambiente. P501 - Eliminare il contenuto nel contenitore approvato. Contiene Phosphoric acid, mild O-D-bis(o)-S and pentyl esters, zinc salts, highly refined, low viscosity base oil (Viscosity: *7 cSt @40°C) EC</p>	<p>Houghton Italia S.p.A. Via F. Poellinger, 50 00015 - Montelibretti (RM) ITALY Telefono: +39 011 6025411 Fax: +39 011 6021776 IT11@H024.houghton.com Numero telefonico di emergenza urgente: (+31 700 470 3601) (Codice: 332630)</p>
<p>GB - DANGERS H314 - Causes serious eye damage. H412 - Harmful to aquatic life with long lasting effects. GHS09 - Repeated exposure may cause skin dryness or cracking. P201 - Wear eye protection/face protection. P202 - P273 - IF IN CONTACT WITH SKIN, Wash thoroughly with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P280 - Immediately call a POISON CENTER or doctor/hospital. P273 - Avoid release to the environment. P501 - Dispose of contents/container to an approved waste disposal point. Contiene Phosphoric acid, mild O-D-bis(o)-S and pentyl esters, zinc salts, highly refined, low viscosity base oil (Viscosity: *7 cSt @40°C) EC</p>	<p>Houghton plc Beacon Road Tratford Park B71 7JF, UK Tel: +44(0)1454 4762000 H024@houghton.com Emergency Tolksh one: (+31 700 470 3601) (Code: 332630)</p>



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For each hazard classification, new GHS Hazard Labels are required with these prescribed/mandatory features:

PRODUCT IDENTIFIER
Should match the Product Identifier on the Safety Data Sheet

SIGNAL WORDS
Either use "Danger" (severe) or "Warning" (less severe)

HAZARD STATEMENT(S)
A phrase assigned to a hazard class that describes the nature of the product's hazard

PRECAUTIONARY STATEMENT(S)
Describes recommended measures to minimize or prevent adverse effects resulting from exposure:

- Prevention
- Response (including In Case of Fire and First Aid)
- Storage
- Disposal

SAMPLE LABEL

SUPPLEMENTAL INFORMATION

PICTOGRAM(S) WITH A RED BORDER
Graphical symbols intended to convey specific hazard information visually










SUPPLIER IDENTIFICATION
The name, address and telephone number of the manufacturer or supplier



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9 pictograms representing multiple hazards




<p>Health Hazard </p> <ul style="list-style-type: none">• Carcinogen• Respiratory Sensitizer• Reproductive Toxicity• Target Organ Toxicity• Mutagenicity• Aspiration Toxicity	<p>Flame </p> <ul style="list-style-type: none">• Flammables• Self-Reactives• Pyrophorics• Self-Heating• Emits Flammable Gas• Organic Peroxides	<p>Exclamation Mark </p> <ul style="list-style-type: none">• Irritant (skin and eye)• Skin Sensitizer• Acute Toxicity (harmful)• Narcotic Effects• Respiratory Tract Irritant• Hazardous to Ozone Layer
<p>Gas Cylinder </p> <ul style="list-style-type: none">• Gases Under Pressure	<p>Corrosion </p> <ul style="list-style-type: none">• Skin Corrosion/burns• Eye Damage• Corrosive to Metals	<p>Exploding Bomb </p> <ul style="list-style-type: none">• Explosives• Self-Reactives• Organic Peroxides
<p>Flame Over Circle </p> <ul style="list-style-type: none">• Oxidizers	<p>Environment </p> <ul style="list-style-type: none">• Aquatic Toxicity	<p>Skull and Crossbones </p> <ul style="list-style-type: none">• Acute Toxicity (fatal or toxic)



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Example Hazard Language on Label

Classification:	Acute Toxicity
Pictograms	
Signal Word	Danger
Hazard Statements	Fatal if Swallowed
Precautionary Statements	<ul style="list-style-type: none">• Wash thoroughly after handling• Do not eat, drink or smoke when using this product• If swallowed: Immediately call a poison center or doctor• Store locked up• Dispose of contents/container to approved waste disposal facility
Product Identifier	Sodium Nitrite CAS# 7632-00-0

- One Hazard Statement can trigger several Precautionary Statements
- Europe limits the number of Precautionary Statements on a label to a maximum of 6 for the majority of products;
 - *Responsibility of the supplier to determine*
 - *Employers continue to be responsible for assessing the work environment*



Hazard Communication in the Workplace

- The majority of chemicals in the workplace are used at a lower concentrations than provided by the manufacturer.
- Dilution can change the level of the hazard of the product in use, as well as the personal protective equipment (PPE) required.

Concentrated Mixture



8. Exposure Controls / Personal Protection

Engineering Measures: Ensure adequate ventilation. Provide showers, eyewash stations, ventilation systems. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment:

Eye Protection: Tightly fitting safety goggles. Eye protection must conform to standard EN166.

Hand Protection: Protective gloves complying with EN 374.

Skin and body protection: Impervious clothing, impervious gloves. Boots.

Respiratory protection: Do not breath vapors, mist or gas. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection.

Diluted Mixture



8. Exposure Controls / Personal Protection

Engineering Measures: Ensure adequate ventilation

Personal Protective Equipment

Eye Protection: Safety glasses with side shields.

Hand Protection: Protective gloves

Skin Protection: Long sleeved clothing

Respiratory Protection: No special protective equipment required. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection.



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5 Pictograms More Common to MWF Industry (Base Oils + Additives)



- Houghton has a broad product line, with many options, that allow us to meet customer-specific requirements, as well as regional regulatory requirements.
- We continue to make EHS a priority in our planning for new and existing products and actively counsel customers on the safe use, handling, transport and disposal of our products.
- We have many product options that are non-hazardous and/or that do not contain raw materials that may have mixed acceptance in certain countries/regions.



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- Under CLP, all employers are required to train their employees on the new label elements and safety data sheet (SDS) format beginning in 2010.
- The training is to ensure that people handling chemicals can recognize and interpret GHS labels and SDS information and take appropriate action in response to chemical hazards.
- Houghton has provided training for its employees as a part of its CLP implementation. New employees are trained as a part of their induction process.



Other Regulatory Considerations

- Changes in hazard classification under GHS may impact classification under other related regulations (i.e., corrosive under GHS = corrosive under Dangerous Goods)



- Regulations related to the Transport of Dangerous Goods
- Regulations that are country-specific for manufacturing and importing chemicals products
- Country-specific worker safety classification schemes and data publishing requirements



Transport Pictograms (Outer Shipping Carton)

- For transport, existing transport pictograms will be used and will maintain the background and symbol colors currently used.
- Where a transport pictogram appears, the GHS pictogram for the same hazard should not appear.

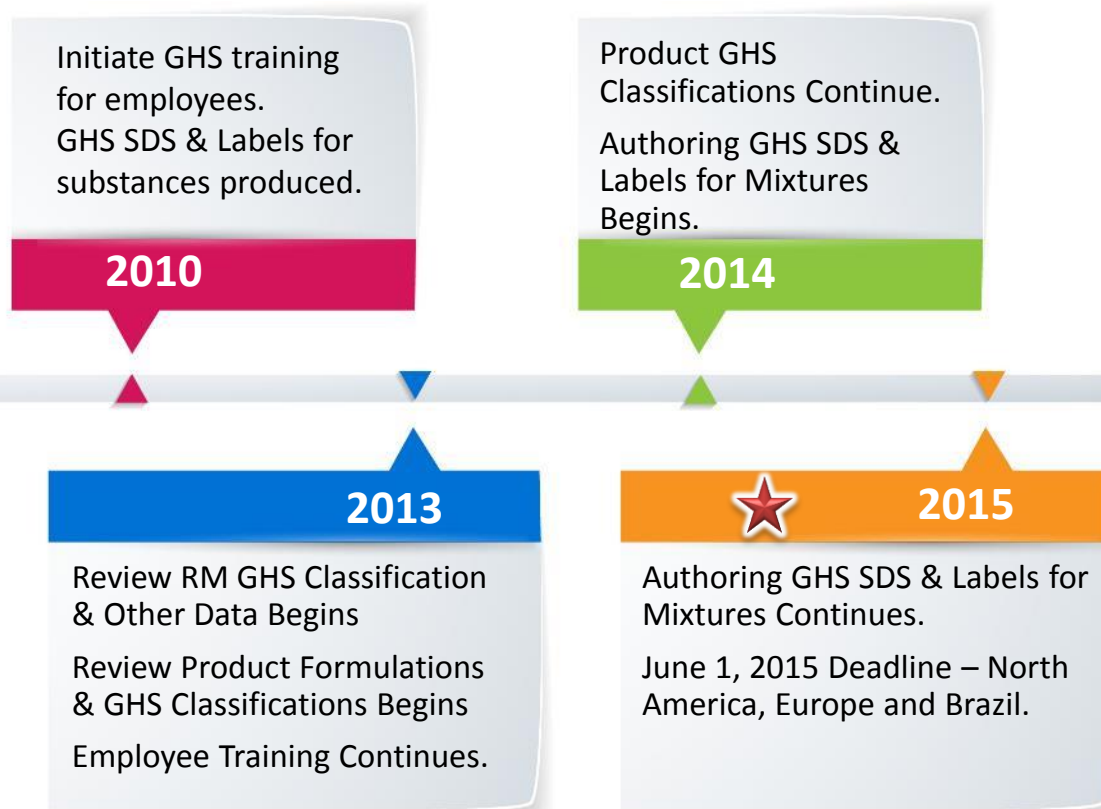


GHS Implementation at Houghton

- Houghton will be generating GHS-compliant SDS and product hazard labels using CLP templates.
- As always, our SDS and labels will be available in multiple languages, depending on “ship-to” location.
- Houghton continues to complete its implementation plans to ensure timely compliance with GHS for all active products sold in Europe, as well as the other regions where we sell products.
- By June 1, 2015, GHS-compliant SDS and product hazard labels will be in use for all newly manufactured active products. Products in warehouses will have up to an additional 2 years to comply.



Houghton's Implementation Timeline



- Houghton will begin using GHS-compliant SDS and product hazard labels for mixtures in 2015. All active products will be compliant by the June 1, 2015 deadline.



Further Information

- During the GHS transition phase, our marketing and sales professionals and our regulatory affairs experts are available to answer your questions regarding our GHS implementation plans. Contact your local Technical Sales Representative or ProductStewardship@houghtonintl.com
- Further information is also available on our corporate website: <http://www.houghtonintl.com/en-us/Pages/Home.aspx>
- For more in-depth information on GHS, you can consult the following websites:
United Nations GHS website: http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html
ECHA's website: <http://echa.europa.eu/>

DISCLAIMER

The information provided herein reflects Houghton International's understanding of the regulations and the activities we are taking to implement the U.N. GHS standard and ECHA's CLP legislation. This presentation may be used for reference purposes only. We advise and encourage our customers and distributors to consult their own regulatory advisors and legal counsel regarding any specific actions they may need to take with regards to compliance for their company.

