



# Best Practices in MSDS Authoring in ] SAP EH&S ]

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The  
**DIFFERENCE**  
Is **YOU**

## [ About Your Speaker

### Tony Harris

- Senior EH&S Compliance Solutions Engineer with 3E Company
- More than 30 years of experience as a chemist and EHS professional in the chemicals and related industries

## [ Learning Points

- MSDS Authoring Overview
- The Impact of New and Emerging Regulations
- Co-Authoring on SAP EH&S



# MSDS Authoring Overview

## MSDS Authoring Overview: Definition Review

### *Would you like a cup of alphabet soup?*

- MSDS = Material Safety Data Sheet
  - Offers a means of providing information from the manufacturer to the user
- Governed by multiple regulations around the globe, including (but not limited to):
  - US:
    - Hazard Communication Standard, 29 CFR 1910.1200
  - Canada:
    - Hazardous Products Act (HPA)
    - Controlled Product Regulations (CPA)
    - WHMIS (Workplace Hazardous Material Information System)
  - EU:
    - REACH (Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals)
    - Additional national regulation will apply
  - Japan:
    - Industrial Safety and Health Law (ISHL)
    - Pollutant Release and Transfer Registry (PRTR)
    - Poisonous and Deleterious Substances Control Law (PDSCL)

## MSDS Authoring Overview: Challenges

- Unfortunately MSDSs lack global standardization; as a result, there is:
  - Variation in national regulatory information to be included in the MSDS
  - Variation in requirements and headings

## **[ MSDS Authoring Overview: Know Your Authoring Options**

Typically three different approaches:

1. Authoring in-house
2. Full outsourcing
3. Co-sourcing or co-authoring

## [ MSDS Authoring Overview: Know Your Authoring Options

- Option #1: Authoring in-house
  - Client uses internal EH&S and IT resources
  - Normally requires sophisticated system to author compliant HazCom documents for global business
  - Total security
  - Consistent appearance, classification, statements or phrase usage
  - MSDS management and distribution handled internally
  - Data management managed internally

## **[ MSDS Authoring Overview: Know Your Authoring Options (cont'd)**

### Option #2: Full outsourcing

- Client provides necessary product info and data
- Service provider uses info (along with other data) to generate a draft MSDS for review
- Service provider is responsible for ensuring current regulatory information, MSDS template, phrases and rules
- Client responsible for final MSDS

### Option #3: Co-Sourcing or Co-Authoring

- Client gives service provider access to the authoring capabilities within the client's authoring software.
  - Authoring platforms and software may include SAP® EHS, MSDgen, ProSteward and The WERCS®
- Method gaining popularity as more clients retire legacy systems, migrate to more robust ERP's (such as SAP)
- BUT still want to maintain some level of in-house authoring capabilities

## **[ MSDS Authoring Overview: Authoring Challenges**

- Lack of standardization
- Lack of accurate regulatory data or confusion about application of such data, resulting in a
  - Need for comprehensive understanding of the regulatory requirements
- Protecting IP (composition confidentiality)
  - Correct balance between meeting regulatory requirements and protecting business needs

## [ MSDS Authoring Overview: Authoring Challenges (cont'd)

- Resource constraints
  - RIFs (Reductions in Force)
  - Maturing workforce
  - On-the-job training
- Budgetary constraints
- Dynamic regulatory landscape



# The Impact of New and Emerging Regulations

## Hazard Communication – MSDS

### Sixteen section MSDS required

1. Substance identity and company contact information
2. Hazards identification
3. Chemical composition and data on components
4. First aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls and 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

# GHS: MSDS Requirements

Pre-GHS		Post-GHS MSDS	
Section 2. Composition/information on ingredients		Section <b>3.</b> Composition/information on ingredients	
Section 3. Hazards identification	<ol style="list-style-type: none"> <li>1. Urgent hazard information</li> <li>2. Eye effect</li> <li>3. Skin effect</li> <li>4. Inhalation effect</li> <li>5. Effect on oral taken</li> <li>6. Chronic effect</li> </ol>	Section <b>2.</b> Hazards identification	<ol style="list-style-type: none"> <li>1. Hazard information</li> <li>2. Label including Pictogram               <ul style="list-style-type: none"> <li>- Signal word</li> <li>- Hazard statement</li> <li>- precautionary statement</li> </ul> </li> <li>3. Other hazards which are not included in the classification criteria (e.g. dust explosion hazard)</li> </ol>

# GHS: The UN's Approach

Target: Establish consistent infrastructure to control chemical exposure and protect people and the environment via

- Streamlined hazard communication requirements
- Consistent classification and hazard communication content



Countries can choose to implement GHS in its entirety or implement only certain parts (“building block” approach)

## PHYSICAL HAZARDS

Explosives  
Flammable Gases/Aerosols  
Oxidizing Gases  
Gases under Pressure  
Flammable Liquids/Solids  
Self-Reactive Substances  
Pyrophoric Liquids/Solids  
Self-Heating Substances  
Substances which on contact with water emit flammable gases  
Oxidizing Liquids/Solids  
Organic Peroxides  
Substances corrosive to metal

## HEALTH HAZARDS

Acute toxicity  
Skin corrosion/irritation  
Severe eye damage/eye irritation  
Respiratory sensitizer  
Skin sensitizer  
Germ cell mutagenicity  
Carcinogenicity  
Toxic to reproduction  
STOT – Single/Repeat Exposure  
Aspiration hazard

## ENVIRONMENTAL HAZARDS

Hazardous to the aquatic environment (acute/chronic)

# [ GHS: Classification Principles

## Based on the intrinsic hazards and a tiered approach

Use test data for the mixture, when available

If not ↓

Use “bridging” principles, if applicable

- Dilution
- Batching
- Concentration of Highly Toxic Mixtures
- Interpolation within One Toxic Category
- Substantially Similar Mixtures
- Aerosols

If not ↓

Estimate (calculate) hazard(s) based on the known ingredient information

## GHS Adoption & Implementation: Common Trends

- Adoption of UN classification criteria and building blocks approach, labeling and MSDS
- Provision of lists of classified substances (New Zealand, Japan, Korea, Europe, Taiwan and China)
- Please note differences in the legal status of these lists (binding and guidance)
- Transitional Period Examples:
  - Korea
    - July 1, 2008 to July 1, 2011 – substances and July 1, 2013 – mixtures
  - European Union
    - Substances must be classified, labeled and packaged from Dec. 1, 2010
      - If on the market and labeled in accordance with Directive 67/548/EEC: Not required to be re-labeled and re-packaged according to Regulation until Dec. 1, 2012
    - Mixtures must be classified, labeled and packaged from June 1, 2015
      - If on the market and labeled in accordance with Directive 1999/45/EC: Not required to be re-labeled and re-packaged according to Regulation until June 1, 2017
    - Substances and mixtures may be classified and labeled according with new CLP (GHS) rules since 20 January 2009.

## [ REACH and GHS: Impact on Authoring

- Companies need to re-evaluate how their substances and mixtures are classified for each regulatory entity, country and/or region
- Companies will likely need to re-issue MSDSs and labels



## Co-authoring on SAP EH&S Module

## SAP EH&S: Implementation Considerations

### Before you get started:

- Clearly identify goals and expectations early.
  - What is your end goal for SAP EH&S output for authoring?
  - What are your expectations from the system once up and running?
- Make the system work for you!
- Most popular feedback: “If we had only thought this through, we would have done things differently.”



## **SAP EH&S: Implementation Considerations (cont'd)**

Before getting started, ask yourself:

- What are the considerations during initial setup?
- Who should be involved?
- What tools can I utilize for maximum output?
- Which building blocks to utilize?

## SAP EH&S: Implementation Considerations (cont'd)

- SAP implementation of the software, such as EH&S module, is a **massive operation** which changes how the organization works together.
  - Your GOAL is to make the changes work for YOU!
- The resulting changes that the implementation of SAP generates are intended to reach high level goals, such as:
  - improved communication and increased return on investment.
- SAP is modular and fully customizable. EH&S is comprised of several modules that optimize the use of data to perform EH&S functions.
- One customer's SAP does not necessarily mirror another SAP EH&S setup. The system is defined by its utilization as specified by the owner.
- SAP is as ROBUST as the information and set up

## SAP EH&S: Implementation Considerations (cont'd)

### A few suggestions:

- Develop in-house expertise
  - This expertise can provide support later down the road
- Have the right people working together
- Consider cleaning up your data before you migrate to SAP
- DON'T settle for “*We’ve always done it this way*”.
- Don’t try to recreate your legacy system
- Streamline your process
- Eliminate as much customization as possible – Helps other building blocks fit
- Document your processes
- Spend the manpower to invest in fully loading SAP with data.
- Explore the opportunities SAP provides to complete work faster, smarter!

# [ SAP EH&S: Implementation Considerations (cont'd)

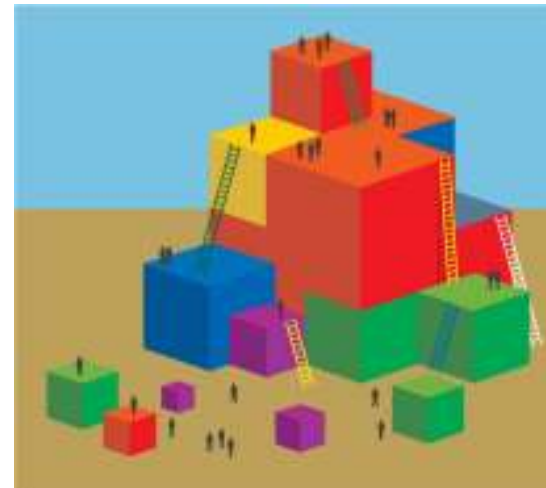
## Determine your Objectives:

- Eliminate manual input
- Optimize the system to its fullest
- Improved productivity
- Create consistency within your MSDSs
- Align strategies and operations

## Authoring in SAP EH&S: The Elements

Utilize the essential building blocks, including:

- Authoring Expertise
- Regulatory Data & Content
  - Dangerous Goods
  - Phys-Chem
  - Tox
  - Eco-Tox
- Rules
- Phrase Library
- Reference Substances
- List Substances
- Templates



## [ Authoring in SAP EH&S: Product Safety Data

### Product Safety Data

- Difficult to ensure quality and accuracy of data
- May be optimal to use a service provider
- Regulatory experts can focus on compliance rather than data entry

## Authoring in SAP EH&S: PC-TEC Data

- Phys-Chem, Tox and Eco-Tox data is particularly difficult to manage due to:
  - Migration of company-specific data
  - Too much data from some sources
  - Not enough data from other sources
  - Expert judgment involved

## Authoring in SAP EH&S: Multilingual Phrases

- Need to use distinct phrases for the creation of MSDSs, including:
  - Header and sub-header phrases
  - Risk and safety phrases
  - GHS hazard and precautionary statements
- Phrase library should be available in all languages in which you do business. Maintaining a phrase library can be a huge task and can have a significant impact on Rules and Templates.

## [ Authoring in SAP EH&S: Expert Rules

Expert Rules are an **automated** regulatory compliant solution, that satisfies local country/area regulations for the **creation of safety data sheets or product labels.**

## [ Authoring in SAP EH&S: Expert Rules (cont'd)

*Rules use existing data to make decisions, just as a Product Safety/Dangerous Goods expert does:*

- Extrapolate hazards from physical/chemical data and test results
- Use component regulatory data to determine regulatory implications about a mixture
- Classify a substance based on toxicological test results and evaluations
- Generate warning messages when the substance requires further review

## Authoring in SAP EH&S: Expert Rules (cont'd)

- Generic rules – applicable to all regions
- Identify Reportable Compositions
  - Chemical Inventory Status
- North America – types of rules included:
  - OSHA reportable hazards
  - Federal and State RTK regulations
  - Special hazards (CMRs)
  - Country specific OEL requirements
- Europe – types of rules included:
  - Classification
  - Components Requiring Label Disclosure
  - Special Hazards (CMRs)
  - Country Specific OEL Requirements
  - Local ( WGK – DE, Maladies Professionelles - FR)

## [ Authoring in SAP EH&S: Expert Rules (cont'd)

- Asia Pacific Rules
  - Identify reportable composition based on country specific regulations
  - Assign hazard classification based on Hazard Symbol, Risk and Safety Phrases
  - Evaluate Asia Pacific countries' local regulations
  - Country Coverage:
    - Australia
    - Japan
    - Korea
    - Malaysia
    - China
    - Singapore
    - Thailand
    - Taiwan

## Authoring in SAP EH&S: Expert Rules (cont'd)

- GHS Rules
  - Mixture classification rules are based on the UN Purple Book
  - Covers all hazard categories:
    - Physical-chemical, based on transport classification
    - Health, based on toxicity and existing classification data
    - Environmental, based on toxicity and existing classification data
  - Generate labeling elements and hazardous composition
  - Includes country variations for Japan, Korea, Taiwan

## [ Authoring in SAP EH&S: Choosing the Right Tools for You

- Optimized SAP systems:
  - Contain complete component data
  - Utilize Referencing
  - Utilize the Building Blocks (Rules, Data)
  - Eliminate Manual Input
  - **ACHIEVE TIME SAVINGS AND ACCURACY IN MSDS CREATION!**

**Authoring in SAP EH&S:  
Choosing the Right Tools for You (cont'd)**

- **SAP CAN BE A VERY ROBUST SYSTEM**  
... according to how well you build your system and by utilizing the building blocks.
- **Let the system work for you!**

## [ Authoring in SAP EH&S: Choosing the Right Tools for You (cont'd)

### Something else to consider:

- Does your company want to author on SAP? Invest time and money into bringing authors up to speed on the system

OR

- Consider outsourcing to a company that is expert in the SAP arena?
  - Clients benefit from professionals who have experience of authoring on numerous SAP EH&S platforms
  - No training on the system, just on your processes that you would like to be followed
  - Access to experts who know and understand the system.

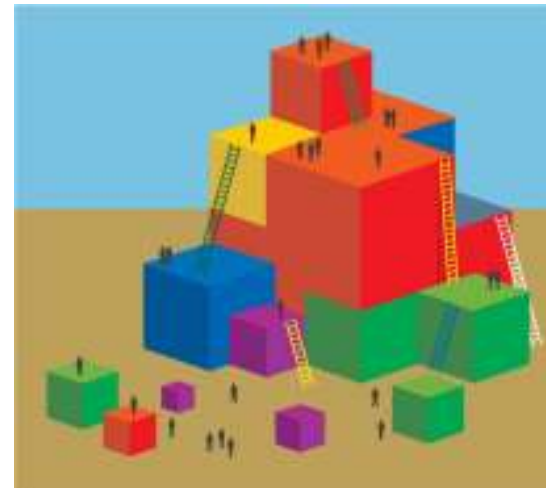
## Best Practices

- Do your research. When Authoring, it is essential to know your target.
  - Remember to consider the impact of emerging regulations.
- Remember the details. When Authoring in the SAP EH&S module, develop a detailed implementation plan prior to actual implementation.
  - Clearly state your objectives.
- Use Building Blocks. These tools can help optimize your system and make SAP EH&S work for you.

## Authoring in SAP EH&S: The Elements

Utilize the essential building blocks, including:

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- Regulatory Data & Content
  - Dangerous Goods
  - Phys-Chem
  - Tox
  - Eco-Tox
- Rules
- Phrase Library
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- List Substances
- Templates



## Key Learnings

- Authoring in-house, co-authoring and outsourcing all offer distinct benefits.
  - Carefully weigh all three options
  - One solution is not necessarily superior to the others
- Authoring or co-authoring on SAP EH&S can offer many benefits, including time savings and accuracy in MSDS creation.