

# Welcome

The presentation will start shortly.



# Introducing



## Shalini Saini Ram

Compliance Program Manager, *ThermoFisher Scientific*

- 15+ years of experience in the biotech industry
- Performed several thousand chemical hazard evaluations, provided critical and safety information to emergency responders, and advised on the safe disposal of waste to internal and external customers
- DOT/IATA certified to determine Dangerous Goods per transport and has stayed current with all state and international regulations
- Currently ensuring that ThermoFisher Scientific instruments and consumables are compliant with REACH and RoHS
- Society of Chemical Hazard Communications (SCHC) member
- IEEE member
- B.S. in Chemistry with emphasis on Biochemistry from the University of San Francisco (USF).
- Contact: [Shalini.Ram@ieee.org](mailto:Shalini.Ram@ieee.org)

# GHS Safety Data Sheets (SDSs) & Labels

**Shalini Saini Ram**

Compliance Program Manager

February 09, 2022

 The world leader in serving science



# Agenda

1 Globally Harmonized System (GHS)

2 Safety Data Sheets (SDSs)

3 SDS Examples

4 GHS Labels

5 GHS Label Examples

6 Q&A

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## Introduction

### What is Hazard Communication?

- The purpose of Hazard Communication is to ensure that the hazards of all chemicals used and sold are evaluated, and the information concerning their hazards is transmitted to employees and **customers**. This information is conveyed through comprehensive hazard communication programs, which include **container labeling** and other forms of warning, **Safety Data Sheets (SDS)**, and employee training.

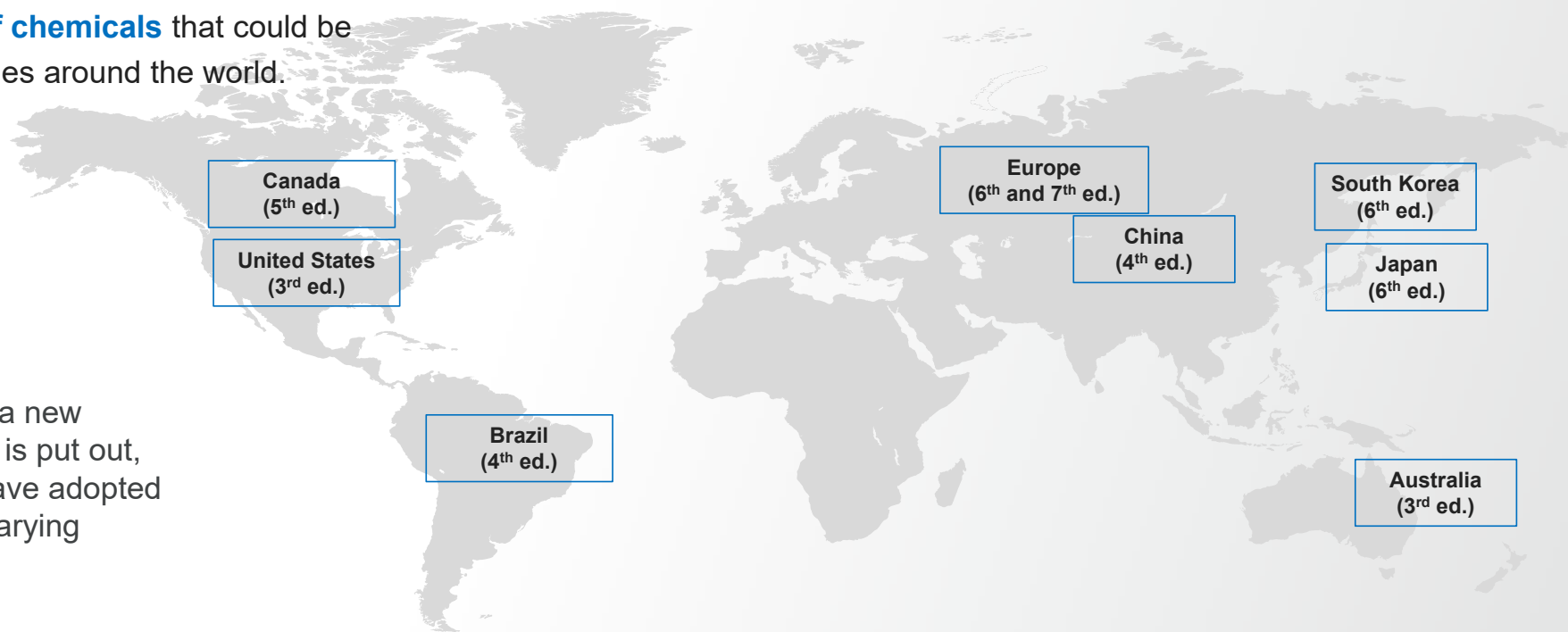


# Introduction

## Globally Harmonized System (GHS)

Global concerns emphasize the need to have standard for the **labeling** and **classification of chemicals** that could be used by companies around the world.

Every **2 years**, a new version of GHS is put out, but countries have adopted the system at varying paces.



# Introduction

## Globally Harmonized System (GHS)

- Developed by the United Nations
- Revised and updated every 2 years
  - [Currently on GHS 9th ed. \(2021\)](#)
- Voluntary international system; **not legally binding** in any country
- Countries issue their own regulations or standards to implement GHS. Two examples are:
  - US → [OSHA's Hazard Communication Standard \(HCS\) 2012 in the United States;](#)
  - EU → [The EU CLP REGULATION \(EC\) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures;](#)
    - [ECHA Guidance on labelling and packaging in accordance with Regulation \(EC\) No 1272/2008](#)



# Introduction

## PURPOSE



- Enhances protection of human health & environment through a harmonized system of hazard communication including:
  - **classification and labelling**
  - occupational safety
  - **safety data sheets**
  - consumer protection
  - transport classification
- Reduces the need for testing and evaluation of chemicals
- Facilitates international trade of chemicals whose hazards have been properly assessed

## CONCERN



- GHS is not necessarily harmonized, and some countries have adopted GHS in all 4 sectors while others have only adopted GHS in 1 or 2 sectors.
  - Transport
  - Workplace
  - Consumer
  - Pesticides

## IMPACT



- Increase quality and consistency of information to workers, employees and chemicals users
- Meet legal obligations
- Safer customer working environment
- Risk reduction
- Prevents shipment holds

## **Safety Data Sheets (SDS)**

# What is a Safety Data Sheet (SDS)?

- A comprehensive document on hazards associated with the product and information on handling, storage, first-aid, and accidental release measures for safe usage

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**SAFETY DATA SHEET**

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

PRODUCT: 857658 C812A Eluent Concentrate (20x), 100 mL, Pkg of 4

ThermoFisher Scientific  
1228 Tice Way  
P.O. Box 3003  
Sunnyvale, California 94089-3003

Emergency Phone: 1-800-424-0000 (CHEMTREC)  
Information Phone: +1-703-527-0887 (INTERNATIONAL)  
Date Revised: 04/30/2015

For laboratory use.

**2. HAZARD(S) IDENTIFICATION**

Classification of the Substance or Mixture:

 GHS05 Corrosive

 GHS07 Irritant

Signal Word:

Danger:

Hazard Statements:

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H335 May cause respiratory irritation.  
H290 May be corrosive to metals.

Potential Health Effects:

Eyes: Causes severe eye damage.  
Skin: Irritation and severe skin burns may occur.  
Inhalation: Respiratory irritation may occur.  
Ingestion: Harmful if swallowed.

Chromatography Mass Spectrometry Division  
Omnes Products  
1228 Tice Way  
P.O. Box 3003  
Sunnyvale, CA  
94089-3003  
(408) 737-0700  
www.thermofisher.com  
408.737.2088

SDS 005313, Rev. 02 Page 1 of 8

# Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to **provide Safety Data Sheets (SDSs)** (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include 16 section numbers, the headings, and associated information under the headings as indicated below:

- **§1, Identification** Includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
- **§2, Hazard(s) identification** Includes all hazards regarding the chemical; required label elements.
- **§3, Composition/information on ingredients** Includes information on chemical ingredients; trade secret claims.
- **§4, First-aid measures** Includes important symptoms/ effects, acute, delayed; required treatment.
- **§5, Fire-fighting measures** Lists suitable extinguishing techniques, equipment; chemical hazards from fire. **Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- **§7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.
- **§8, Exposure controls/personal protection** lists Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
- **§9, Physical and chemical properties** lists the chemical's characteristics.
- **§10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.
- **§11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- **§12, Ecological information**
- **§13, Disposal considerations**
- **§14, Transport information**, includes USDOT, IATA, IMP/IMDG, and/or ADR classifications.
- **§15, Regulatory information** includes region-specific (US, EU, APAC) laws and regulations.
- **§16, Other information** includes the date of preparation or last revision.

Most prevalent sections for our practices are identified in blue

# Safety Data Sheet | §1, Identification

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## AMERICAS

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### Safety Data Sheet

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### Identification of the substance or mixture

Product code 075778  
Product name EGC 500 KOH Cartridge

##### Company/undertaking identification

Thermo Fisher Scientific  
1228 Titan Way  
P.O. Box 3603  
Sunnyvale, CA 94088-3603

THERMO FISHER SCIENTIFIC BRASIL  
INSTRUMENTOS DE PROCESSO LTDA  
R SANTA CLARA, 191 - LOTE 04 QUADRA A2  
PARQUE INDUSTRIAL SAN JOSE  
CEP 06.715-867

**24 hour Emergency Response for Hazardous Materials** Within the USA + Canada: 1-800-424-9300 and  
[or Dangerous Goods] Incident, Spill, Leak, Fire, 1-703-527-3887  
Exposure, or Accident. Call CHEMTREC Outside the USA + Canada: 1-703-741-5970

Country Specific Emergency Number (if available):

For research use only

## EMEA

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### Safety Data Sheet

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)  
Classification according to Regulation (EC) No. 1272/2008 (CLP)

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### Product identifier

Product code 075778  
Product name EGC 500 KOH Cartridge

Chemical Name Not Applicable  
REACH registration number No registration number is given yet for this substance / substances in this mixture since the annual import quantity is less than one tonnage per annum or the transition period for its registration according to Article 23 of REACH has not yet expired.

##### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses Laboratory use  
Use Description Code Not available  
Uses advised against Not for consumer use.

##### Details of the supplier of the safety data sheet

##### Manufacturer / Supplier

Thermo Fisher Scientific  
1228 Titan Way  
P.O. Box 3603  
Sunnyvale, CA 94088-3603

Thermo Fisher Scientific (Bremen) GmbH  
Hanna-Kunath-Str. 11  
28199 Bremen  
Germany  
Phone: +49 (0)421-5493-219  
Email: cmd.sds@thermofisher.com

Thermo Fisher Scientific  
Tudor Road  
Cheshire, WA7 1AT, United Kingdom  
Phone: +44-1928-534000  
Fax: +44-1928-588106

**24 hour Emergency Response for Hazardous Materials** Within the USA + Canada: 1-800-424-9300 and  
[or Dangerous Goods] Incident, Spill, Leak, Fire, 1-703-527-3887  
Exposure, or Accident. Call CHEMTREC Outside the USA + Canada: 1-703-741-5970


Country Specific Emergency Number (if available):

[US SDS for PN 075778](#)

[EU SDS for PN 075778](#)

# Safety Data Sheet | §2, Hazard(s) identification

## AMERICAS

SECTION 2: Hazards identification	
<b>GHS Classification</b>	
<b>Signal Word</b> DANGER	
<b>Hazard pictograms</b>	
	
<b>Health hazards</b>	
Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1
<b>Physical hazards</b>	
GHS Physical Hazard	Substances/mixtures corrosive to metal
GHS Physical Hazard Category Number	Category 1
<b>Environmental hazards</b>	
Not Hazardous	
<b>Hazard Statements</b>	
H290 - May be corrosive to metals	
H302 - Harmful if swallowed	
H314 - Causes severe skin burns and eye damage	
<b>Precautionary Statements</b>	
<b>Prevention</b>	
P234 - Keep only in original container	
P260 - Do not breathe dust/fume/gas/mist/vapors/spray	
P264 - Wash hands thoroughly after handling	
P270 - Do not eat, drink or smoke when using this product	
P280 - Wear protective gloves/protective clothing/eye protection/face protection	
<b>Response</b>	
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician	
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower	
P390 - Absorb spillage to prevent material damage	
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if	


Signal Word

Pictogram(s)

H Phrase(s)

P Phrase(s)

## EMEA

SECTION 2: Hazards identification	
<b>Classification of the substance or mixture</b>	
<b>Classification according to Regulation (EC) No. 1272/2008 [CLP]</b>	
<b>Physical hazards</b>	
Corrosive to Metals	Category 1
<b>Health hazards</b>	
Acute oral toxicity	Category 4
Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	
Not Hazardous	
<b>Label elements</b>	
<b>Labelling according to Regulation (EC) No 1272/2008 [CLP]</b>	
<b>Hazard pictograms</b>	
	
<b>Signal Word</b> Danger	
<b>Hazard Statements</b>	
H290 - May be corrosive to metals	
H314 - Causes severe skin burns and eye damage	
H302 - Harmful if swallowed	
<b>Precautionary Statements</b>	
<b>Prevention</b>	
P234 - Keep only in original container	
P260 - Do not breathe dust/fume/gas/mist/vapours/spray	
P264 - Wash hands thoroughly after handling	
P280 - Wear protective gloves/protective clothing/eye protection/face protection	
P270 - Do not eat, drink or smoke when using this product	
<b>Response</b>	
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower	
P390 - Absorb spillage to prevent material damage	
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician	
<b>Revision date</b> 29-Dec-2019 <b>Page</b> 2 / 10	
<b>Product code</b> 075778 <b>Product name</b> EGC 500 KOH Cartridge	
<b>www.thermofisher.com</b>	
<b>P305 + P351 + P338 - IF IN EYES:</b> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing	
<b>P304 + P340 - IF INHALED:</b> Remove person to fresh air and keep comfortable for breathing	
<b>P301 + P330 + P331 - IF SWALLOWED:</b> Rinse mouth. Do NOT induce vomiting	

US SDS for PN 075778

EU SDS for PN 075778

# Safety Data Sheet | §3, Composition/information on ingredients

## AMERICAS

### SECTION 3: Composition/information on ingredients

Chemical Name	CAS No.	Common name	EINECS-No	Weight-%
Water	7732-18-5	Not applicable	231-791-2	77.6
Potassium hydroxide	1310-58-3	Not applicable	-	22.4

We recommend handling all chemicals with caution.

## EMEA

### SECTION 3: Composition/information on ingredients

Chemical Name	CAS No	EINECS-No.	Weight-%	REACH registration number	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Water	7732-18-5	231-791-2	77.6	-	Not classified
Potassium hydroxide	1310-58-3	-	22.4	-	Met. Corr. 1 - H290 Acute Tox. 4 - H302 Skin Corr. 1A - H314

All SDS list Hazardous Chemicals in Section 3.

- EXCEPT Korean SDS
  - Korea – OSHA requires 100% composition disclosure via the SDS or directly to KR Ministry of Employment and Labor (“MoEL”) as Jan. 2021

[US SDS for PN 075778](#)

[EU SDS for PN 075778](#)

# Safety Data Sheet | §14, Transportation information

## International Air Transport Association (IATA)



### SECTION 14: Transport information

#### IATA / ADR / DOT-US / IMDG

Classified as dangerous in the meaning of transport regulations

UN number	1814
UN proper shipping name	Potassium hydroxide solution
Transport hazard class(es)	8
Packing group	II

- IATA DG classification
  - US, EU, APAC region SDS will all have the same DG classification

#### Environmental hazards

Not Hazardous

#### Special precautions for user

Not Applicable

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not Applicable.

US SDS for PN 075778

EU SDS for PN 075778

IATA: International Air Transport Association

ADR: ADR is the European Agreement concerning the International Carriage of Dangerous Goods by Road

DOT-US: Department of Transportation – United States

IMDG: International Maritime Dangerous Goods (United Nations)

# Safety Data Sheet | §15 Regulatory Information



## US SDS

### California Proposition 65



Section 3 shows all hazardous chemicals

#### SECTION 3: Composition/information on ingredients

Chemical Name	CAS No.	Common name	EINECS No.	Weight %
Nickel (II) sulfate hexahydrate (1:1:6)	10101-97-0	Not applicable	-	<0.0001

We recommend handling all chemicals with caution.

### Section 15

California Proposition 65  
This product contains the following Proposition 65 chemicals:

Chemical Name	CAS No.	Weight-%	Category
Nickel (II) sulfate hexahydrate (1:1:6)	10101-97-0	<0.0001	Carcinogen Developmental Male Reproductive



**WARNING:** This product can expose you to chemicals including Nickel (II) sulfate hexahydrate (1:1:6), that is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

[CA Proposition 65](#)  
[US TSCA: United States Toxic Substances Control Act \(TSCA\)](#)

### US TSCA



Section 3 shows all hazardous chemicals

#### SECTION 3: Composition/information on ingredients

Chemical Name	CAS No.	Common name	EINECS No.	Weight %
Nickel (II) sulfate hexahydrate (1:1:6)	10101-97-0	Not applicable	-	<0.0001

We recommend handling all chemicals with caution.

### Section 15

Component	US TSCA
Nickel (II) sulfate hexahydrate (1:1:6) 10101-97-0 ( <0.0001 )	-

# Safety Data Sheet | §15 Regulatory Information

## EU SDS

- §15 in general will contain regional/country requirements
- Example of EU SDS (§15):
  - EU REACH SVHCs
  - EU REACH Annex XIV (Authorization Substances)
  - EU REACH Annex XVII (Restricted substances)
  - Persistent Organic Pollutants (POPs)

### SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

**Substances of Very High Concern**  
None.

**Substance subject to authorisation per REACH Annex XIV**  
None

**Restricted substances under EC 1907/2006, Annex XVII**  
None.

**Substances listed under Annex I of Regulation (EC) No 689/2008**  
None.

**Restricted substances under Annex V of Regulation (EC) No 689/2008**  
None.

Revision date 26-Dec-2019  
Product code 075778

Page 8 / 10  
Product name EGC 500 KOH Cartridge

www.thermofisher.com

**Substances under Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC**  
None.

# COVID-19

- Moderna (mRNA vaccine)
  - [Fact Sheet](#)
- Pfizer (mRNA vaccine)
  - [Safety Data Sheet \(SDS\)](#)
- Johnson & Johnson (viral vector vaccine)
  - [Fact Sheet](#)
- AstraZeneca
  - [Safety Data Sheet \(SDS\)](#)



From left: The Pfizer-BioNTech vaccine, the Moderna vaccine and the Johnson & Johnson vaccine: Gary Cosby Jr/Tuscaosa News, Jason Beam/USA Today, Johnson & Johnson/AP)

**DISCLAIMER: I am not a doctor, and not providing medical advice.**

# Example | Non-Hazardous SDS

## Pfizer COVID-19 Vaccine

### • §1, Identification

**Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1. Product identifier**

Product Name: Pfizer-BioNTech COVID-19 Vaccine

Product Code(s): PF0002

Form: nanofilm

Synonyms: Continually, PF-07302048 containing PF-07305885 (BNT162b2); CorVAC Containing PF-07305885 (BNT162b2); - CorVAC Containing PF-07305885 (BNT162b2); COVID Vaccine Containing PF-07305885 (BNT162b2); COVID-19 Vaccine Containing PF-07305885 (BNT162b2)

Trade Name: Not applicable

Compound Number: PF-07302048

Item Code: H000022941; H000023057; H000024547; H000024742

Chemical Family: Lipid Nanoparticles containing PF-07305885 (BNT162b2) and Lipids

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

**Recommended Use**: Pharmaceutical product

**1.3. Details of the supplier of the safety data sheet**

Pfizer Inc.  
235 East 42nd Street  
New York, New York 10017  
1-800-879-3477

Pfizer Ireland Pharmaceuticals  
OSG Building  
Ringsaskilly, Co. Cork  
Ireland

**1.4. Emergency telephone number**

Emergency Telephone: Chemtrec 1-800-424-9300 International Chemtrec (24 hours); +1-703-527-3887

E-mail address: pfizer-MSDS@pfizer.com

### • §2, Hazard(s) Identification

#### Section 2: HAZARDS IDENTIFICATION

##### 2.1. Classification of the substance or mixture

GHS - Classification: Not classified as hazardous

##### 2.2. Label elements

**Signal word**: Not classified

**Hazard statements**: Not classified in accordance with international standards for workplace safety.

##### 2.3. Other hazards

**Other hazards**: An Occupational Exposure Value has been established for one or more of the ingredients (see Section 8).

**Note:** This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

### • §3, Composition/information on ingredients

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1. Substances**: Not applicable

**3.2. Mixtures**

Chemical name	Weight-%	REACH Registration Number	EC No	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
<b>Hazardous</b>							
POTASSIUM CHLORIDE 7447-40-7	< 1		231-211-8	Acute Tox 5 (H053)	Not Listed	No data available	No data available
<b>Non-hazardous</b>							
Water 7732-18-5	*		231-791-2	No data available	Not Listed	No data available	No data available
Sucrose 57-50-1	< 10		200-334-9	No data available	Not Listed	No data available	No data available
SODIUM CHLORIDE 7547-14-5	< 10		231-598-3	No data available	Not Listed	No data available	No data available
ALC-0315 2036272-55-4	< 2		Not Listed	No data available	Not Listed	No data available	No data available
Potassium phosphate 7778-77-0	< 1		231-913-4	No data available	Not Listed	No data available	No data available
PF-07305885	< 1		Not Listed	No data available	Not Listed	No data available	No data available
PF-07302048	< 1		Not Listed	No data available	Not Listed	No data available	No data available
Sodium phosphate dihydrate 10028-24-7	< 1		Not Listed	No data available	Not Listed	No data available	No data available
Cholesterol 57-88-5	< 1		200-353-2	No data available	Not Listed	No data available	No data available
ALC-0159 1849515-42-7	< 1		Not Listed	No data available	Not Listed	No data available	No data available
1,2-Distearoyl-sn-glycero-3-phosphocholine 8156-94-4	< 1		212-440-2	No data available	Not Listed	No data available	No data available

Section 3 shows ingredients listed here non-hazardous or below the threshold.



Gary Cosby Jr/Tuscaocosa News

[Link](#)

# Con't Example | Non-hazardous SDS

## Pfizer COVID-19 Vaccine

- §14, Transport information,

### Section 14: TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.



Gary Cosby Jr/Tuscaooosa News

[Link](#)

- §15, Regulatory information,

### Section 15: REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Water	
CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	231-791-2
AICS	Present
Sucrose	
CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	200-334-9
AICS	Present
SODIUM CHLORIDE	
CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	231-598-3
AICS	Present
ALC-0315	
CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
EINECS	Not Listed
Potassium phosphate	
CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	231-913-4


# Example | Hazardous SDS

## Clorox® Disinfecting Bleach

### • §1, Identification

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING	
Product identifier:	Clorox® Disinfecting Bleach
Product Name	
Other means of identification:	
UN-No.	UN1791
Synonyms	NONE
EPA Pesticide registration number	5813-120
Recommended use of the chemical and restrictions on use:	
Recommended Use	Bleach
Areas advised against	No information available
Details of the supplier of the safety data sheet:	
Supplier	The Clorox Company
Supplier Address	1221 Broadway Oakland CA 94612 US
Telephone	1-510-271-7000
Emergency telephone number:	
Emergency Telephone Number	For Medical Emergencies call: 1-800-446-1014. Transportation Emergencies, call Chemtrec: 1-800-424-9300

### • §2, Hazard(s) identification

2. HAZARD IDENTIFICATION	
Classification	
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).	
Skin corrosion/irritation	Category 1 Sub-category C
Serious eye damage/eye irritation	Category 1
GHS Label elements, including precautionary statements	
Signal word	Danger
Emergency Overview	
Hazard Statements	
Causes severe skin burns and eye damage	
	
Appearance	Clear to yellow
Physical state	Liquid
Odor	Bleach
Precautionary Statements - Prevention	
Do not breathe dust/fume/gas/mist/vapors/spray	
Wash face, hands and any exposed skin thoroughly after handling	
Wear protective gloves/protective clothing/eye protection/face protection	

### • §3, Composition/information on ingredients

3. COMPOSITION/INFORMATION ON INGREDIENTS			
Chemical Name	CAS-No	Weight-%	Trade Secret
Sodium hypochlorite	7681-52-9	4 - 9	*



[Link US SDS for Clorox® Disinfecting Bleach](#)

# Con't - Example | Hazardous SDS

## Clorox® Disinfecting Bleach

- §14, Transport information,

14. TRANSPORT INFORMATION	
<b>DOT</b>	
UN-No.	UN1791
Proper Shipping Name	Hypochlorite Solutions
Hazard Class	8
Packing Group	III
Marine Pollutant Description	This product contains a chemical which is listed as a marine pollutant according to DOT Limited Quantity (LTD QTY)
<b>TDG</b>	
UN Number	UN1791
Proper Shipping Name	Hypochlorite Solutions
Hazard Class	8
Packing Group	III
Marine Pollutant	This product contains a chemical which is listed as a marine pollutant according to TDG.
<b>ICAO</b>	
UN-No.	UN1791
Proper Shipping Name	Hypochlorite Solutions
Hazard Class	8
Packing Group	III
<b>IATA</b>	
UN Number	UN1791
Proper Shipping Name	Hypochlorite Solutions
Hazard Class	8
Packing Group	III
<b>IMDG</b>	

[Link US SDS for Clorox® Disinfecting Bleach](#)

- §15, Regulatory information,

15. REGULATORY INFORMATION					
<b>International Inventories</b>					
TSCA	Complies				
DSL	All components are listed either on the DSL or NDSL.				
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List					
<b>US Federal Regulations</b>					
<b>SARA 313</b>					
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372					
<b>SARA 311/312 Hazard Categories</b>					
Acute Health Hazard	Yes				
Chronic Health Hazard	No				
Fire Hazard	No				
Sudden release of pressure hazard	No				
Reactive Hazard	No				
<b>CWA (Clean Water Act)</b>					
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)					
Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances	
Sodium hypochlorite 7681-52-9	100 lb			X	
<b>CERCLA</b>					
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)					
Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ		
Sodium hypochlorite 7681-52-9	100 lb	-	RQ 100 lb final RQRQ 45.4 kg final RQ		
<b>US State Regulations</b>					
<b>California Proposition 65</b>					
This product does not contain any Proposition 65 chemicals.					
<b>U.S. State Right-to-Know Regulations</b>					
Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Sodium hypochlorite 7681-52-9	X	X	X	X	
Sodium Hydroxide 1310-73-2	X	X	X	X	
<b>EPA Pesticide Registration No.</b> 5813-120					
<b>EPA Statement</b>					

# Safety Data Sheets (SDSs) | 2 Types

## Manufactured substance/mixture

Substances that are mixed to formulate a product.

- i.e., SDS is Thermo Fisher branded.
- Manufacturer (i.e., Thermo Fisher) must provide the SDS in all regional formats and languages upon request.

**ThermoFisher SCIENTIFIC**  
**Safety Data Sheet**

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**Identification of the substance or mixture**  
Product code: 057155  
Product name: CS12A Eluent Concentrate, 100 mL, Pkg of 4

**Company/undertaking identification**  
Thermo Fisher Scientific  
12251 Titan Way  
P.O. Box 3003  
Sunnyvale, CA 94088-3003

**24 hour Emergency Response for Hazardous Materials** Within the USA + Canada: 1-800-424-9300 and  
[for Dangerous Goods] Incident: Spill, Leak, Fire, 1-703-527-3887  
Exposure, or Accident: Call CHEMTREC Outside the USA + Canada: 1-703-741-5970

**Country Specific Emergency Number (if available):**

**For research use only**

**SECTION 2: Hazards identification**

**GHS Classification**  
Signal Word: DANGER

**Hazard pictograms**

**Health hazards**  
H301, H331, H350, H360Df, H410  
Category 1B

Revision date: 26-May-2019  
Product code: 057155  
Product name: CS12A Eluent Concentrate, 100 mL, Pkg of 4  
Page: 1 / 5  
www.thermofisher.com

## Distributor substance/mixture

Purchased chemicals to be re-sold to a customer as is.

- i.e., Supplier branded.
- Thermo Fisher purchases chemical(s) from a supplier (i.e., Sigma-Aldrich). Thermo Fisher is the distributor of this chemical.
- The supplier (i.e., Sigma-Aldrich) must provide the SDS in all regional formats and languages upon request.

**Sigma-Aldrich**  
**SAFETY DATA SHEET**

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifiers**  
Product name: Buspirone hydrochloride  
Product Number: B7148  
Brand: Sigma  
CAS-No.: 33386-08-2

**1.2 Relevant identified uses of the substance or mixture and uses advised against**  
Identified uses: Laboratory chemicals, synthesis of substances

**1.3 Details of the supplier of the safety data sheet**  
Company: Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS, MO 63103  
UNITED STATES  
Telephone: +1 314 771-5765  
Fax: +1 800 325-5052

**1.4 Emergency telephone**  
Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**  
**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**  
Acute toxicity, Oral (Category 3), H301  
For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**  
Pictogram:

Signal word: Danger  
Hazard statement(s): H301  
Precautionary statement(s): P264  
Wash skin thoroughly after handling.

Sigma - B7148

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

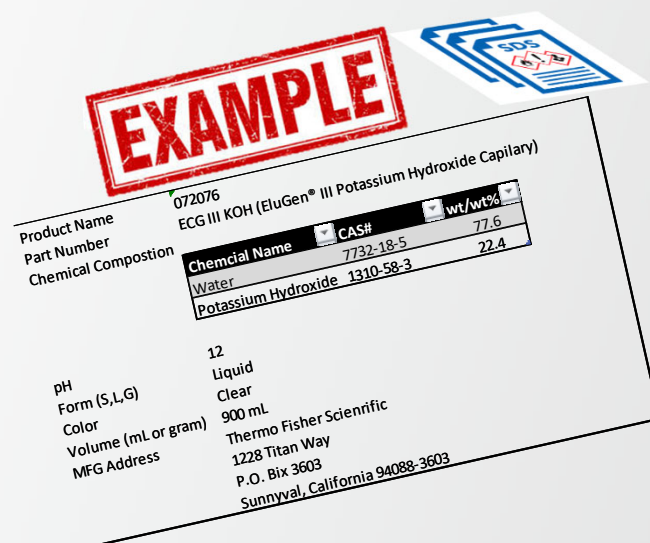
**MILLIPORE SIGMA**

Page 1 of 8

# Safety Data Sheet | Requirements

## Manufacturer:

- If a SDS needs to be authored, technical information about the product will need to be provided. This includes:
  - ☐ Product name (as it appears on the label) and part number
  - ☐ Manufacturing address
  - ☐ Full Chemical composition
  - ☐ SDSs for each chemical identified in the chemical composition
  - ☐ Any known hazardous properties
  - ☐ Physical state including color
  - ☐ Any known chemical and physical properties
  - ☐ Any test data if applicable
  - ☐ Volume (mL or gram)
  - ☐ Intended Use (e.g., Research Use Only, In-vitro Diagnostic)



## Distributor:

- When SDS and translations are required as distributor, contact the supplier

# Requirements

- Chemical products must be labeled (product and package) and have a SDS that meets the content and language requirements of where the product is shipped.



Region	Language
APAC	British English
	Hindi
	Indonesian (Bahasa)
	Chinese traditional (Taiwanese)
Korea	Thai
	British English
China	Korean
	British English
EMEA	Chinese
	Arabic
	British English
	Bulgarian
	Czech
	Denmark
	German
	Greek
	Spanish
	Estonian
	Finnish
	French
	Italian
	Lithuanian
	Dutch Netherlands
	Norwegian
	Polish
	Portuguese
	Russian
Japan	Slovakian
	Slovenian
AMERICAS	Swedish
	Turkish
	Hungarian
	British English
AMERICAS	Japanese
	Brazilian Portuguese
	Canadian French
	American English
	Spanish

# Requirements

## Example

- SDS and Labels must match

ThermoFisher

SCIENTIFIC

SAFETY DATA SHEET

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

PRODUCT:  
057558 CS12A Eluent Concentrate (20x), 100 mL, Pkg of 4


Thermo Fisher Scientific  
1228 Titan Way  
P.O. Box 3603  
Sunnyvale, California 94088-3603


Emergency Phone: 1-800-424-9300 (CHEMTREC)  
+1-703-527-3887 (INTERNATIONAL)  
Information Phone: (408) 737-0700  
Date Revised: 04/30/2015

For laboratory use.

2. HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture:

 GHS05 Corrosive

 GHS07 Irritant

Signal Word:  
Danger

Hazard Statements:  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H335 May cause respiratory irritation.  
H290 May be corrosive to metals.

Potential Health Effects:

Eyes: Causes severe eye damage.  
Skin: Irritation and severe skin burns may occur.  
Inhalation: Respiratory irritation may occur.  
Ingestion: Harmful if swallowed.

Chromatography Mass Spectrometry Division  
Dionex Products  
1228 Titan Way  
P.O. Box 3603  
Sunnyvale, CA 94088-3603  
(408) 737-0700  
(408) 737-2588  
www.thermofisher.com

SDS 065313, Rev. 02

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[Link to US SDS for PN 057558](#)

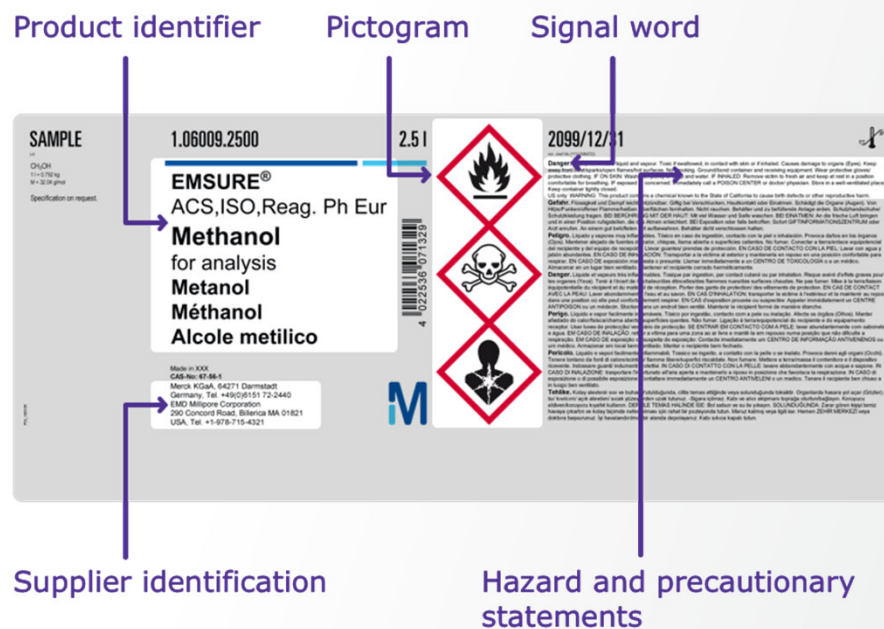
26 Shalini.Saini@thermofisher.com | 09-Feb-2022

## GHS Labels

# What is a Globally Harmonized System (GHS) label?

## Product Labels

- Product information (including hazards and precautionary measures) which is printed on the immediate container, or to the outside packaging of the product



# Example | GHS Label

**The Basic Parts of A GHS-Compliant Label**

**1** → **n-Propyl Alcohol**  
UN No. 1274  
CAS No. 71-23-8

**2** → **DANGER**

**3** → Highly flammable liquid and vapor. Causes serious eye damage. May cause drowsiness and dizziness.

**4** → Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

**5** → Fill Weight: 18.65 lbs. Lot Number: BS6754434  
Gross Weight: 20 lbs. Fill Date: 6/21/2013  
Expiration Date: 6/21/2020 See SDS for further information.  
Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • www.acmechem.com • 123-444-5567

**6** →

1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.  
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)  
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards  
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.  
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.  
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.

Sample label courtesy of Weber Packaging Solutions

Hazard Class

Hazard  
Category

Signal Word

Pictogram

Hazard  
Statement

Precautionary  
Statement

Supplier  
Information

# US OSHA Hazard Communication Standard (HCS)

## GHS labelling criteria given by OSHA Hazard Communication Standard (HCS)

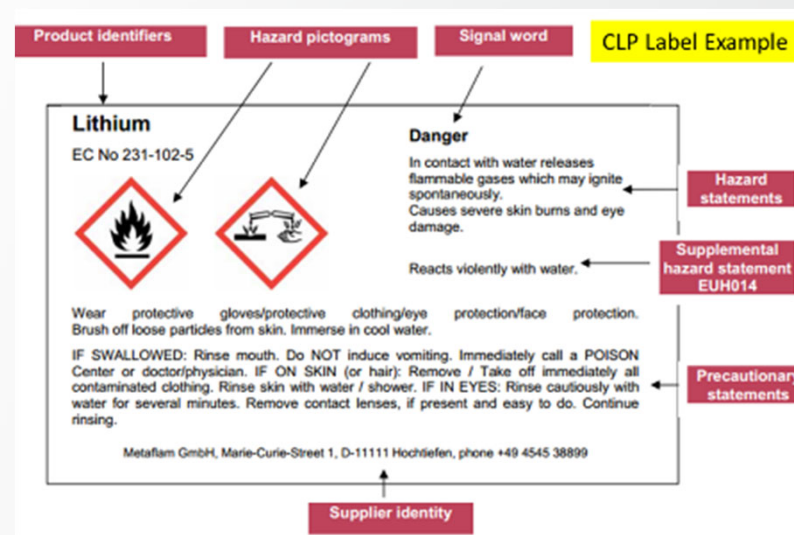
- HCS Label Elements:
  - Name, address, and phone number of the supplier
  - Nominal quantity of the substance or mixture
  - Product identifiers
  - Hazard pictograms
  - Signal word
  - Hazard statements
  - Precautionary statements
  - Supplemental information
- Mandatory employee training requirement
- Can withhold specific chemical identity if it is a trade secret and its hazards are disclosed
  - May need to disclose in cases of medical emergency

The image displays two documents related to the OSHA Hazard Communication Standard (HCS). On the left is the 'OSHA QUICK CARD', which provides a summary of the HCS requirements. It states that OSHA has updated the requirements for labeling hazardous chemicals under the HCS, and that all labels must include product identifiers, hazard pictograms, a signal word, hazard statements, precautionary statements, and supplemental information. On the right is a 'SAMPLE LABEL' for a chemical. The label includes fields for 'Product Identifier' (Name, Address, City, State, Postal Code, Country, Emergency Phone Number), 'Supplier Identification' (Company Name, Street Address, City, State, Postal Code, Country, Emergency Phone Number), 'Hazard Pictograms' (GHS05: Corrosion, GHS02: Flammable), 'Signal Word' (Danger), 'Hazard Statements' (Highly flammable liquid and vapor, May cause liver and kidney damage), 'Precautionary Statements' (Keep container tightly closed, Store in a cool, well-ventilated place, etc.), and 'Supplemental Information' (First Aid, etc.).

# EU Classification, Labelling, and Packaging of Substances and Mixtures (CLP)

GHS labelling criteria given by **CLP Regulation (EC) 1272/2008**

- Written in the official language of destination Member States
- CLP Label Elements:
  - Name, address, and phone number of the supplier
  - Nominal quantity of the substance or mixture
  - Product identifiers
  - Hazard pictograms
  - Signal word
  - Hazard statements
  - Precautionary statements
  - Supplemental information
- Not more than six precautionary statements (unless it is necessary)
- Hiding composition info: a request for the use of an alternative chemical name must be submitted to and approved by ECHA
- For small packages ( $\leq 125\text{mL}$ ), certain GHS label elements can be omitted



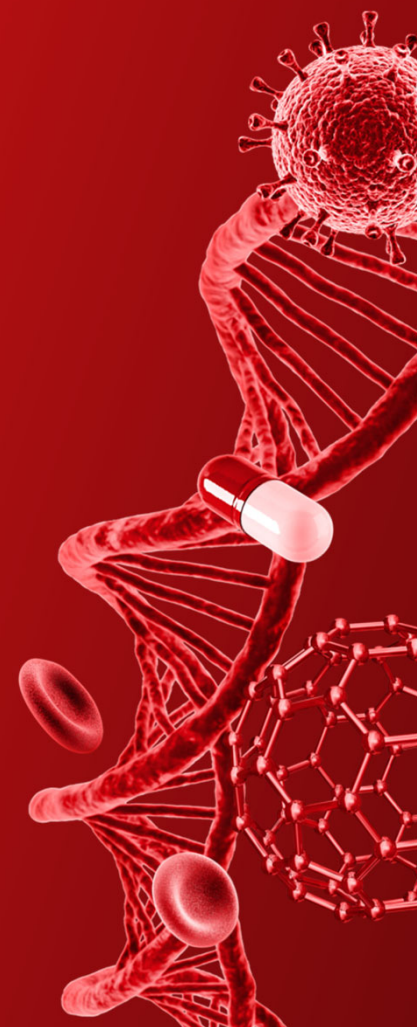
Literature: [CLP Regulation Q/A](#)

# Summary

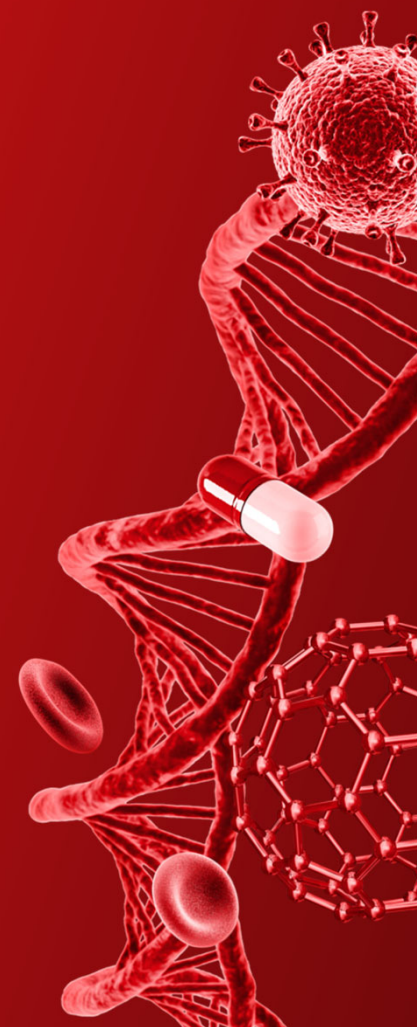
- Ensure SDS and labels match
- Understand applicable GHS criteria for destination country
- Ensure GHS SDS are created with translations prior to product launch
- Place GHS compliant labels on all chemicals
- Ensure accurate classification of chemicals
- Establish a system of safe-handling and transportation of chemicals

# Q & A

## Feedback/Comments



# Thank you



# Appendix | Links and/or Key Definitions

Description	Links or Definitions
OSHA's Hazard Communications Standard (HCS) 2021 in the US	<a href="https://www.chemsafetypro.com/Topics/USA/GHS_in_USA_SDS_label.html">https://www.chemsafetypro.com/Topics/USA/GHS_in_USA_SDS_label.html</a>
EU CLP Regulation (EC) No 1272/2008 on Classification, Labeling and Packaging of Substances and Mixtures	<a href="https://www.chemsafetypro.com/Topics/EU/CLP_Regulation_EC_No_1272_2008.html">https://www.chemsafetypro.com/Topics/EU/CLP_Regulation_EC_No_1272_2008.html</a>
ECHA Guidance on labeling and packaging in accordance with Regulation (EC) No 1272/2008	<a href="https://echa.europa.eu/documents/10162/2324906/clp_labelling_en.pdf/89628d94-573a-4024-86cc-0b4052a74d65">https://echa.europa.eu/documents/10162/2324906/clp_labelling_en.pdf/89628d94-573a-4024-86cc-0b4052a74d65</a>
US SDS for PN 075778	<a href="https://www.thermofisher.com/document-connect/document-connect.html?url=https://assets.thermofisher.com/TFS-Assets%2FSLSG%2FSDS%2F075778_MTR-NALT_EN.pdf">https://www.thermofisher.com/document-connect/document-connect.html?url=https://assets.thermofisher.com/TFS-Assets%2FSLSG%2FSDS%2F075778_MTR-NALT_EN.pdf</a>
EU SDS for PN 075778	<a href="https://www.thermofisher.com/document-connect/document-connect.html?url=https://assets.thermofisher.com/TFS-Assets%2FSLSG%2FSDS%2F075778_MTR-EULT_BE.pdf">https://www.thermofisher.com/document-connect/document-connect.html?url=https://assets.thermofisher.com/TFS-Assets%2FSLSG%2FSDS%2F075778_MTR-EULT_BE.pdf</a>
IATA	International Air Transport Association
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
DOT-US	Department of Transportation – United States
IMDG	International Maritime Dangerous Goods (United Nations)
CA Proposition 65	<a href="https://oehha.ca.gov/proposition-65/about-proposition-65">https://oehha.ca.gov/proposition-65/about-proposition-65</a>
US TSCA: United States Toxic Substances Control Act (TSCA)	<a href="https://www.epa.gov/chemicals-under-tsca">https://www.epa.gov/chemicals-under-tsca</a>
EU REACH	EU Registration, Evaluations, Authorization and Restriction of Chemicals
EU REACH SVHCs: EU Substance of Very High Concern	<a href="https://echa.europa.eu/candidate-list-table">https://echa.europa.eu/candidate-list-table</a>
EU REACH Annex XIV (Authorization Substances)	<a href="https://echa.europa.eu/authorisation-list">https://echa.europa.eu/authorisation-list</a>
EU REACH Annex XVII (Restricted Substances)	<a href="https://echa.europa.eu/substances-restricted-under-reach">https://echa.europa.eu/substances-restricted-under-reach</a>
Moderna Fact Sheet	<a href="https://www.modernatx.com/covid19vaccine-eua/">https://www.modernatx.com/covid19vaccine-eua/</a>
Pfizer US Safety Data Sheet	<a href="https://safetydatasheets.pfizer.com/DirectDocumentDownloader/Document?prd=PF00092~~PDF~~MTR~~PFEM~~EN">https://safetydatasheets.pfizer.com/DirectDocumentDownloader/Document?prd=PF00092~~PDF~~MTR~~PFEM~~EN</a>
Johnson & Johnson Fact Sheet	<a href="https://www.fda.gov/media/146305/download">https://www.fda.gov/media/146305/download</a>
AstraZeneca AU Safety Data Sheet	<a href="https://www.astrazeneca.com.au/content/dam/az-au/AZD1222_SDS_25943_v1-1_16SEP20.pdf">https://www.astrazeneca.com.au/content/dam/az-au/AZD1222_SDS_25943_v1-1_16SEP20.pdf</a>
Clorox® Disinfecting Bleach US Safety Data Sheet	<a href="https://www.thecloroxcompany.com/wp-content/uploads/2020/03/Clorox-Disinfecting-Bleach_EN2.pdf">https://www.thecloroxcompany.com/wp-content/uploads/2020/03/Clorox-Disinfecting-Bleach_EN2.pdf</a>
CLP Regulation Q/A	<a href="https://echa.europa.eu/support/qas-support/browse/-/qa/70Qx/view/scope/clp/annex+vi+to+clp">https://echa.europa.eu/support/qas-support/browse/-/qa/70Qx/view/scope/clp/annex+vi+to+clp</a>
GHS 9 th ed. (2021)	<a href="https://unece.org/sites/default/files/2021-09/GHS_Rev9E_0.pdf">https://unece.org/sites/default/files/2021-09/GHS_Rev9E_0.pdf</a>
GHS 8 th ed. (2019)	<a href="https://unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev08/ST-SG-AC10-30-Rev8e.pdf">https://unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev08/ST-SG-AC10-30-Rev8e.pdf</a>
GHS 7 th ed. (2017)	<a href="https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf">https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf</a>
GHS Label Elements	<a href="https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/10e_annex7.pdf">https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/10e_annex7.pdf</a>
H-Statements	<a href="https://www.sigmaaldrich.com/content/dam/sigma-aldrich/docs/promo_NOT_INDEXED/General_Information/1/h_overview.pdf">https://www.sigmaaldrich.com/content/dam/sigma-aldrich/docs/promo_NOT_INDEXED/General_Information/1/h_overview.pdf</a>
P-Statements	<a href="https://www.sigmaaldrich.com/content/dam/sigma-aldrich/docs/promo_NOT_INDEXED/General_Information/1/p_overview.pdf">https://www.sigmaaldrich.com/content/dam/sigma-aldrich/docs/promo_NOT_INDEXED/General_Information/1/p_overview.pdf</a>