



## Hazard Communication Standard Labels

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

For more information:





(800) 321-OSHA (6742)  
www.osha.gov

**SAMPLE LABEL**

**CODE** \_\_\_\_\_ } **Product Identifier**  
**Product Name** \_\_\_\_\_ }

**Company Name** \_\_\_\_\_ } **Supplier Identification**  
**Street Address** \_\_\_\_\_ }  
**City** \_\_\_\_\_ **State** \_\_\_\_\_ }  
**Postal Code** \_\_\_\_\_ **Country** \_\_\_\_\_ }  
**Emergency Phone Number** \_\_\_\_\_ }

**Hazard Pictograms**

**Signal Word**  
**Danger**

**Highly flammable liquid and vapor.** } **Hazard Statements**  
**May cause liver and kidney damage.** }

**Precautionary Statements**

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.  
 Keep away from heat/sparks/open flame. No smoking.  
 Only use non-sparking tools.  
 Use explosion-proof electrical equipment.  
 Take precautionary measures against static discharge.  
 Ground and bond container and receiving equipment.  
 Do not breathe vapors.  
 Wear protective gloves.  
 Do not eat, drink or smoke when using this product.  
 Wash hands thoroughly after handling.  
 Dispose of in accordance with local, regional, national, international regulations as specified.

**In Case of Fire:** use dry chemical (BC) or Carbon Dioxide (CO<sub>2</sub>) fire extinguisher to extinguish.

**First Aid**  
 If exposed call Poison Center.  
 If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

**Supplemental Information**

**Directions for Use**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Fill weight: \_\_\_\_\_ Lot Number: \_\_\_\_\_  
 Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
 Expiration Date: \_\_\_\_\_

# OSHA<sup>®</sup> DATOS RÁPIDOS

## Etiquetas para la norma sobre la comunicación de peligros

De acuerdo con su norma de comunicación de peligros (HCS, por sus siglas en inglés), la OSHA ha actualizado los requisitos para las etiquetas de los productos químicos peligrosos. A partir del 1.º de junio de 2015, se exigirá que todas las etiquetas incluyan pictogramas, una palabra de advertencia, indicaciones de peligro, consejos de prudencia, identificación del producto y la identificación del proveedor. A la derecha se presenta la muestra de una etiqueta modificada de acuerdo con la HCS, que indica los elementos obligatorios. La etiqueta puede contener también información suplementaria según sea necesario.

### Para más información:

**OSHA<sup>®</sup>** Administración de Seguridad y Salud Ocupacional

(800) 321-OSHA (6742)  
www.osha.gov

### ETIQUETA DE MUESTRA

CÓDIGO \_\_\_\_\_  
Nombre del producto \_\_\_\_\_

Identificación del producto

Nombre de la empresa \_\_\_\_\_  
Dirección \_\_\_\_\_  
Ciudad \_\_\_\_\_ Estado \_\_\_\_\_  
Código postal \_\_\_\_\_ País \_\_\_\_\_  
Número de teléfono de emergencia \_\_\_\_\_

Identificación del proveedor

Mantener el contenedor herméticamente cerrado. Guardar en un lugar fresco, bien ventilado y cerrado bajo llave. Mantener alejado de fuentes de calor, chispas o llama abierta. No fumar. Usar sólo con herramientas que no generen chispas. Usar equipo eléctrico a prueba de explosiones. Tomar medidas de precaución contra descargas estáticas. Fijar y conectar a tierra el equipo contenedor y receptor. No respirar los vapores. Usar guantes protectores. Abstenerse de comer, beber o fumar cuando se usa este producto. Lavarse muy bien las manos después de manejar este producto. Desechar el producto según las especificaciones y los reglamentos locales, regionales, nacionales e internacionales.

**En caso de incendio:** usar un extintor de polvo químico (tipo BC) o de bióxido de carbono (CO<sub>2</sub>).

#### Primeros auxilios

Si hay exposición a este producto, llamar al Centro de Control de Intoxicaciones. En caso de contacto con la piel o el cabello: quitarse de inmediato toda la ropa contaminada. Lavarse la piel con agua.

### Pictogramas de peligro



### Palabra de advertencia

**Peligro**

Líquido y vapores muy inflamables.  
Puede provocar daños al hígado y a los riñones.

Indicaciones de peligro

Consejos de prudencia

### Información suplementaria

#### Instrucciones de uso










\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Peso lleno: \_\_\_\_\_ Número de lote: \_\_\_\_\_  
Peso bruto: \_\_\_\_\_ Fecha de llenado: \_\_\_\_\_  
Fecha de caducidad: \_\_\_\_\_

## Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

### HCS Pictograms and Hazards

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

For more information:

## Pictograma para la norma sobre la comunicación de peligros

A partir del 1.º de junio de 2015, la norma de comunicación de peligros (HCS, por sus siglas en inglés) exigirá pictogramas en las etiquetas para advertir a los usuarios de los peligros químicos a los que puedan estar expuestos. Cada pictograma representa un peligro definido y consiste en un símbolo sobre un fondo blanco enmarcado con un borde rojo. La clasificación del peligro químico determina el pictograma que muestra la etiqueta.

### Pictogramas y peligros según la HCS

<p><b>Peligro para la salud</b></p>  <ul style="list-style-type: none"> <li>• Carcinógeno</li> <li>• Mutagenicidad</li> <li>• Toxicidad para la reproducción</li> <li>• Sensibilización respiratoria</li> <li>• Toxicidad específica de órganos diana</li> <li>• Peligro por aspiración</li> </ul>	<p><b>Llama</b></p>  <ul style="list-style-type: none"> <li>• Inflamables</li> <li>• Pirofóricos</li> <li>• Calentamiento espontáneo</li> <li>• Desprenden gases inflamables</li> <li>• Reaccionan espontáneamente (autorreactivos)</li> <li>• Peróxidos orgánicos</li> </ul>	<p><b>Signo de exclamación</b></p>  <ul style="list-style-type: none"> <li>• Irritante (piel y ojos)</li> <li>• Sensibilizador cutáneo</li> <li>• Toxicidad aguda (dañino)</li> <li>• Efecto narcótico</li> <li>• Irritante de vías respiratorias</li> <li>• Peligros para la capa de ozono (no obligatorio)</li> </ul>
<p><b>Botella de gas</b></p>  <ul style="list-style-type: none"> <li>• Gases a presión</li> </ul>	<p><b>Corrosión</b></p>  <ul style="list-style-type: none"> <li>• Corrosión o quemaduras cutáneas</li> <li>• Lesión ocular</li> <li>• Corrosivo para los metales</li> </ul>	<p><b>Bomba explotando</b></p>  <ul style="list-style-type: none"> <li>• Explosivos</li> <li>• Reaccionan espontáneamente (autorreactivos)</li> <li>• Peróxidos orgánicos</li> </ul>
<p><b>Llama sobre círculo</b></p>  <ul style="list-style-type: none"> <li>• Comburentes</li> </ul>	<p><b>Medio ambiente</b> (No obligatorio)</p>  <ul style="list-style-type: none"> <li>• Toxicidad acuática</li> </ul>	<p><b>Calavera y tibias cruzadas</b></p>  <ul style="list-style-type: none"> <li>• Toxicidad aguda (mortal o tóxica)</li> </ul>

Para más información:

## 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 the section numbers, the headings, and associated information under the headings below:

**Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

**Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.

**Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.

**Section 4, First-aid measures** includes important symptoms/effects, acute, delayed; required treatment.

**Section 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.

**Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.

*(Continued on other side)*

**For more information:**



U.S. Department of Labor

[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

## Hazard Communication Safety Data Sheets

**Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

**Section 9, Physical and chemical properties** lists the chemical's characteristics.

**Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.

**Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information\*

Section 13, Disposal considerations\*

Section 14, Transport information\*

Section 15, Regulatory information\*

**Section 16, Other information**, includes the date of preparation or last revision.

\*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1910.1200(g)(2)).

**Employers must ensure that SDSs are readily accessible to employees.**

See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.

For more information:



U.S. Department of Labor

[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

## Fichas de datos de seguridad para la comunicación de peligros

La norma de comunicación de peligros (HCS, por sus siglas en inglés) exige que los fabricantes, distribuidores o importadores de productos químicos proporcionen fichas de datos de seguridad (FDS) (conocidas anteriormente como hojas de información sobre la seguridad de los materiales o MSDS) para comunicar los peligros de los productos químicos peligrosos. A partir del 1.º de junio de 2015, la HCS exigirá que las nuevas FDS sigan un formato uniforme e incluyan los números de sección, los encabezados y la información pertinente bajo los encabezados siguientes:

**Sección 1, Identificación del producto,** incluye el identificador del producto; nombre, dirección y número de teléfono del fabricante o distribuidor; número de teléfono de emergencia; uso recomendado; y restricciones del uso.

**Sección 2, Identificación del peligro o peligros,** describe todos los peligros relacionados con el producto químico y los elementos obligatorios de la etiqueta.

**Sección 3, Composición/información sobre los componentes,** incluye los datos acerca de ingredientes químicos y las declaraciones de secretos de fabricación.

**Sección 4, Primeros auxilios,** describe los síntomas o efectos agudos inmediatos y retardados importantes; y el tratamiento necesario.

**Sección 5, Medidas de lucha contra incendios,** enumera los medios y los equipos protectores adecuados para la extinción de incendios, y los peligros específicos de los productos químicos debidos al fuego.

**Sección 6, Medidas que deben tomarse en caso de vertido accidental,** menciona los procedimientos de emergencia, equipos protectores y métodos correctos para aislamiento y limpieza.

*(Continúa al reverso)*

Para más información:



Departamento de Trabajo de los EE. UU.

[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

## Fichas de datos de seguridad para la comunicación de peligros

**Sección 7, Manipulación y almacenamiento**, describe las precauciones para manipular y almacenar con seguridad los materiales, entre otras, las incompatibilidades.

**Sección 8, Controles de exposición/protección personal**, enumera los límites de exposición permisibles (PEL) de la OSHA, valores límite umbrales (TLV), controles de ingeniería apropiados, y equipos de protección personal (EPP).

**Sección 9, Propiedades físicas y químicas**, menciona las características del producto químico.

**Sección 10, Estabilidad y reactividad**, describe la estabilidad química y la posibilidad de reacciones peligrosas.

**Sección 11, Información toxicológica**, enumera las vías de exposición, los síntomas y efectos agudos y crónicos relacionados, y las medidas numéricas de la toxicidad.

Sección 12, Información ecotoxicológica\*

Sección 13, Información relativa a la eliminación de los productos\*

Sección 14, Información relativa al transporte\*

Sección 15, Información sobre la reglamentación\*

**Sección 16, Otras informaciones**, incluye la fecha de preparación o de la última modificación.

\*Nota: debido a que otros organismos regulan esta información, la OSHA no exigirá el cumplimiento de las secciones 12 a 15 (norma 29 CFR 1910.1200(g)(2)).

**Los empleadores deben comprobar que los empleados tengan acceso fácil a las FDS.**

Consultar la descripción detallada del contenido de las FDS en el Apéndice D de la norma 29 CFR 1910.1200.

Para más información:



Departamento de Trabajo de los EE. UU.

[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)



# OSHA<sup>®</sup> BRIEF

## Hazard Communication Standard: Safety Data Sheets

The Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor, or importer provide Safety Data Sheets (SDSs) (formerly MSDSs or Material Safety Data Sheets) for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent user-friendly, 16-section format. This brief provides guidance to help workers who handle hazardous chemicals to become familiar with the format and understand the contents of the SDSs.

The SDS includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. The information contained in the SDS must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information as detailed in Appendix D of 29 CFR 1910.1200. The SDS preparers may also include additional information in various section(s).

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., fire fighting). This information should be helpful to those that need to get the information quickly. Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element.

The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.

A description of all 16 sections of the SDS, along with their contents, is presented below:

### Section 1: Identification

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

- Product identifier used on the label and any other common names or synonyms by which the substance is known.
- Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
- Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).

## Section 2: Hazard(s) Identification

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

- The hazard classification of the chemical (e.g., flammable liquid, category<sup>1</sup>).
- Signal word.
- Hazard statement(s).
- Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
- Precautionary statement(s).
- Description of any hazards not otherwise classified.
- For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

## Section 3: Composition/Information on Ingredients

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

### Substances

- Chemical name.
- Common name and synonyms.
- Chemical Abstracts Service (CAS) number and other unique identifiers.
- Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

### Mixtures

- Same information required for substances.
- The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
  - Present above their cut-off/concentration limits or
  - Present a health risk below the cut-off/concentration limits.
- The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
  - A trade secret claim is made,
  - There is batch-to-batch variation, or
  - The SDS is used for a group of substantially similar mixtures.

### Chemicals where a trade secret is claimed

- A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

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<sup>1</sup>Chemical, as defined in the HCS, is any substance, or mixture of substances.

#### **Section 4: First-Aid Measures**

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

- Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
- Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
- Recommendations for immediate medical care and special treatment needed, when necessary.

#### **Section 5: Fire-Fighting Measures**

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

- Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
- Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
- Recommendations on special protective equipment or precautions for firefighters.

#### **Section 6: Accidental Release Measures**

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

- Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
- Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
- Methods and materials used for containment (e.g., covering the drains and capping procedures).
- Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up).

#### **Section 7: Handling and Storage**

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

- Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
- Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements).

### Section 8: Exposure Controls/Personal Protection

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

- OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
- Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
- Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

### Section 9: Physical and Chemical Properties

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Odor;
- Odor threshold;
- pH;
- Melting point/freezing point;
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;
- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential.

## Section 10: Stability and Reactivity

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other. The required information consists of:

### Reactivity

- Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.

### Chemical stability

- Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers that may be needed to maintain chemical stability.
- Indication of any safety issues that may arise should the product change in physical appearance.

### Other

- Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.
- List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).
- List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.
- List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)

## Section 11: Toxicological Information

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

- Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
- Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
- The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
- Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
- Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA.

### Section 12: Ecological Information (non-mandatory)

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

- Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
- Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
- Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient ( $K_{ow}$ ) and the bioconcentration factor (BCF), where available.
- The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
- Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

### Section 13: Disposal Considerations (non-mandatory)

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS. The information may include:

- Description of appropriate disposal containers to use.
- Recommendations of appropriate disposal methods to employ.
- Description of the physical and chemical properties that may affect disposal activities.
- Language discouraging sewage disposal.
- Any special precautions for landfills or incineration activities.

### Section 14: Transport Information (non-mandatory)

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

- UN number (i.e., four-figure identification number of the substance)<sup>2</sup>.
- UN proper shipping name<sup>2</sup>.
- Transport hazard class(es)<sup>2</sup>.
- Packing group number, if applicable, based on the degree of hazard<sup>2</sup>.
- Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
- Guidance on transport in bulk (according to Annex II of MARPOL 73/78<sup>3</sup> and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code))).
- Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

<sup>2</sup> Found in the most recent edition of the United Nations Recommendations on the Transport of Dangerous Goods.

<sup>3</sup> MARPOL 73/78 means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, as amended.

## Section 15: Regulatory Information (non-mandatory)

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

- Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations).

## Section 16: Other Information

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

### Employer Responsibilities

Employers must ensure that the SDSs are readily accessible to employees for all hazardous chemicals in their workplace. This may be done in many ways. For example, employers may keep the SDSs in a binder or on computers as long as the employees have immediate access to the information without leaving their work area when needed and a back-up is available for rapid access to the SDS in the case of a power outage or other emergency. Furthermore, employers may want to designate a person(s) responsible for obtaining and maintaining the SDSs. If the employer does not have an SDS, the employer or designated person(s) should contact the manufacturer to obtain one.

### References

OSHA, 29 CFR 1910.1200(g) and Appendix D.

United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), third revised edition, United Nations, 2009.

These references and other information related to the revised Hazard Communication

Standard can be found on OSHA's Hazard Communication Safety and Health Topics page, located at:  
<http://www.osha.gov/dsg/hazcom/index.html>.

Disclaimer: This brief provides a general overview of the safety data sheet requirements in the Hazard Communication Standard (see 29 CFR 1910.1200(g) and Appendix D of 29 CFR 1910.1200). It does not alter or determine compliance responsibilities in the standard or the Occupational Safety and Health Act of 1970. Since interpretations and enforcement policy may change over time, the reader should consult current OSHA interpretations and decisions by the Occupational Safety and Health Review Commission and the courts for additional guidance on OSHA compliance requirements. Please note that states with OSHA-approved state plans may have additional requirements for chemical safety data sheets, outside of those outlined above. For more information on those standards, please visit:  
<http://www.osha.gov/dcsp/osp/statestandards.html>.

**This is one in a series of informational briefs highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.**

**For assistance, contact us. We can help. It's confidential.**



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