

# How to Read A Safety Data Sheet (SDS)

Safety Data Sheets (SDS) are an important requirement of the OSHA Hazard Communication Standard. SDS are essential documents that are used to inform employees, students, and the general public about how materials can be safely handled, used, and stored. Since Flinn provides chemicals only to schools, we have written Flinn SDS specifically for teachers and their students. Using clear and straightforward language, each Flinn SDS provides all the relevant safety and hazard information in a consistent, useful, and easy-to-read two-page format. Flinn SDS follow the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The 16 sections are divided into four major areas, each designed to answer a specific question.

**What is the material and what do I need to know immediately in an emergency?**

**Sections 1–3.**

**A** It is important that the chemical name on the label match the name on the SDS. Many chemicals have similar names, but very different properties.

**B** The most important section! Provides an overview of the physical and health hazard risks associated with using the material.

**C** Signal words, either Danger or Warning, heighten the awareness of the relative risk when using certain chemicals. Danger is the more severe warning!

**D** Eight pictograms exist in the GHS classification scheme to call attention to physical and health hazards. See page 1238 for more information about GHS pictograms.





**E** This section includes the formula, formula weight, concentration, and CAS#. The CAS# is the single identifying number for each specific substance. CAS# should match the CAS# on the bottle label.

**What should I do if a hazardous situation occurs?**

**Sections 4–6.**

**F** Seek medical attention. These first-aid measures are only meant for immediate first aid and should always be followed up with professional medical care. The CAS# is the single identifying number for each specific substance. CAS# should match the CAS# on the bottle label.

**G** This section is written for the firefighter. Flash point (the lowest temperature at which enough vapor is present to form an ignitable mixture with air); upper and lower flammable limits; and the auto ignition temperature (AIT) are common properties included in this section.

FLINN SCIENTIFIC, INC. Safety Data Sheet (SDS)					SDS #: 181.00
					Revision Date: September 25, 2014
<b>SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION</b>					
<b>n-Butyl Alcohol</b>					
Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261				<b>C</b> Signal Word <b>DANGER</b>	
CHEMTREC Emergency Phone Number: (800) 424-9300				<b>D</b> Pictograms	
<b>SECTION 2 — HAZARDS IDENTIFICATION</b>					
Hazard class: Flammable liquids (Category 3). Flammable liquid and vapor (H226). Keep away from heat, sparks, open flames, and hot surfaces. No smoking (P210).					
Hazard class: Acute toxicity, oral (Category 4). Harmful if swallowed (H302). Do not eat, drink or smoke when using this product (P270).					
Hazard class: Skin corrosion or irritation (Category 2). Causes skin irritation (H315).					
Hazard class: Serious eye damage/eye irritation (Category 1). Causes serious eye damage (H318).					
Hazard class: Specific target organ toxicity, single exposure; respiratory tract irritation (Category 3). May cause respiratory irritation (H335).					
Hazard class: Specific target organ toxicity, single exposure; Narcotic effects (Category 3). May cause drowsiness or dizziness (H336). Avoid breathing mist, vapors or spray (P261).					
<b>SECTION 3 — COMPOSITION, INFORMATION ON INGREDIENTS</b>					
<b>Component Name</b>	<b>CAS Number</b>	<b>Formula</b>	<b>Formula Weight</b>	<b>Concentration</b>	
n-Butyl alcohol	71-36-3	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> CH <sub>2</sub> OH	74.12		
Synonym: 1-Butanol; n-Butanol					
<b>SECTION 4 — FIRST AID MEASURES</b>					
Call a POISON CENTER or physician if you feel unwell (P312).					
<b>If inhaled:</b> Remove victim to fresh air and keep at rest in a position comfortable for breathing (P304+P340).					
<b>If in eyes:</b> Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing (P305+P351+P338).					
<b>If on skin (or hair):</b> Immediately remove all contaminated clothing. Rinse skin with water (P303+P361+P353).					
<b>If swallowed:</b> Rinse mouth. Call a POISON CENTER or physician if you feel unwell (P302+P301+P312).					
<b>SECTION 5 — FIRE FIGHTING MEASURES</b>					
Class 1C flammable liquid.				<b>G</b> NFPA Code	
Flash point: 37 °C Flammable limits: Lower: 1.4% Upper: 11.2% Autoignition Temperature: 343 °C				H-2	
When heated to decomposition, may emit toxic fumes.				F-3	
<b>In case of fire:</b> Use triclass dry chemical fire extinguisher (P370+P378).				R-0	
<b>SECTION 6 — ACCIDENTAL RELEASE MEASURES</b>					
Remove all ignition sources and ventilate area. Contain the spill with sand or other inert absorbent material and deposit in a sealed bag or container. See Sections 8 and 13 for further information.					
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**H** The NFPA code is a numerical code established by the National Fire Protection Association. It rates the substance *under fire conditions* in four categories. **H**ealth, **F**lammability, **R**eactivity, and **U**nusual reactivity: 4 is a severe hazard, 0 is no hazard.

**I** How to clean up a spill. Always remove unprotected personnel from area and make sure all students are safe. Contain the spill with sand or absorbent materials.

## How to Read A Safety Data Sheet (SDS), continued

Each Flinn SDS follows the same format and the information is always found in the same location, making it a valuable resource in the event of an emergency. With your first chemical order of the year, every teacher will receive a CD from Flinn Scientific containing all of our SDS. You may also request another CD at any time. Flinn SDS are updated on a regular basis, guaranteeing the most up-to-date safety information possible. Flinn sells a complete SDS Library in two versions, a hard copy version in two binders (Catalog No. AP7703, page 1206) or as part of the Flinn Online Chemventory program. For a more detailed description of the Flinn Online Chemventory program, please refer to pages 1196–1197. For our customers' convenience, Flinn has also placed a free complete set of SDS on our website. Simply go to [www.flinnsci.com](http://www.flinnsci.com) and click on the *Free SDS* button—individual SDS are easy to find and copies may be printed from your computer.

<b>FLINN SCIENTIFIC, INC.</b>	
<b>Safety Data Sheet</b>	<b>n-Butyl Alcohol</b>
<b>SDS #:</b> 181.00	
<b>Revision Date:</b> September 25, 2015	
<b>SECTION 7 — HANDLING AND STORAGE</b>	
Flinn Suggested Chemical Storage Pattern: Organic #2. Store with alcohols, glycols, amines, and amides. Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Saf-Stor™ can. Keep container tightly closed (P233). Keep cool (P235). Use only in a well-ventilated area or in a hood.	
<b>SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION</b>	
Wear protective gloves, protective clothing and eye protection (P280). Wash thoroughly after handling (P264). Use ventilation to keep airborne concentrations below exposure limits. Exposure guidelines: PEL 100 ppm (OSHA) TLV 20 ppm (ACGIH).	
<b>SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES</b>	
Clear colorless liquid. Wine-like odor. Soluble: Water (20%). Miscible with alcohol and ether.	Boiling point: 117.7 °C Melting point: -89 °C Refractive index: 1.3988 Specific gravity: 0.81
<b>SECTION 10 — STABILITY AND REACTIVITY</b>	
Avoid contact with aluminum, chromium trioxide, and oxidizing materials. Substance may develop explosive hydroperoxides. Shelf life: Fair, substance may oxidize. See Section 7 for further information.	
<b>SECTION 11 — TOXICOLOGICAL INFORMATION</b>	
Acute effects: Absorbed through skin. Eye, skin, respiratory tract irritation. Dizziness. CNS depression. Chronic effects: N.A. Target organs: Eyes, skin, respiratory system, central nervous system. N.A. = Not available, not all health aspects of this substance have been fully investigated.	ORL-RAT LD <sub>50</sub> : 790 mg/kg IHL-RAT LC <sub>50</sub> : 8000 ppm/4H SKN-RBT LD <sub>50</sub> : 3400 mg/kg
<b>SECTION 12 — ECOLOGICAL INFORMATION</b>	
Data not yet available.	
<b>SECTION 13 — DISPOSAL CONSIDERATIONS</b>	
Please review all federal, state and local regulations that may apply before proceeding. Flinn Suggested Disposal Method #18b is one option.	
<b>SECTION 14 — TRANSPORT INFORMATION</b>	
Shipping name: Butanols. Hazard class: 3, Flammable Liquid. UN number: UN1120. N/A = Not applicable	
<b>SECTION 15 — REGULATORY INFORMATION</b>	
TSCA-listed, EINECS-listed (200-751-6), RCRA code U031.	
<b>SECTION 16 — OTHER INFORMATION</b>	
This Safety Data Sheet (SDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).	
Consult your copy of the <i>Flinn Science Catalog/Reference Manual</i> for additional information about laboratory chemicals.	
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### How can I prevent hazardous situations from occurring?

#### Sections 7–11.

**J** Use the Flinn Suggested Chemical Storage Pattern to prevent accidents and improve safety. Special storage and usage tips are also included.

**K** Wear personal protective equipment such as goggles, gloves, and an apron. See page 1226–1227 for an explanation of exposure guidelines.

**L** Clear, concise, and useful physical and chemical properties help you learn more about the chemicals you use. The first part describes the material's appearance. If it doesn't look like this, STOP. Do not use it. It may be more or less hazardous.

**M** Describes the conditions or reactions to be avoided. Also provides some indication about anticipated shelf life.

**N** More detail on how the material may injure you. Acute (short exposure) and chronic (long-term) effects are listed along with their target organs.

**O** Oral (ORL), inhalation (IHL), and skin absorption (SKN) toxicity data on test animals is included. For more information on LD<sub>50</sub>, see pages 1228–1229.

#### Other useful information. Sections 12–16.

**P** Ecological impact if large amounts (e.g., tank car) of the chemical spill near a river or lake.

**Q** Suggested disposal methods for laboratory quantities of chemicals. See pages 1268–1298 for Flinn Suggested Disposal Methods.

**R** Department of Transportation shipping information is included for your school district, emergency responders, and transport/shipping departments.

**S** Regulatory information used by regulatory compliance personnel.

**T** Flinn Scientific has an ongoing program to update its SDS. As professional chemists, we try our best to provide science teachers with the most accurate and useful safety information. Call Flinn if you have any questions. We can help!