



**BUTADIENE AWARENESS**

Preparation: Safety Mgr

Authority: CEO

Issuing Dept: Safety

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**Purpose:**

The purpose of this program is to establish requirements for the use and handling of materials that expose employees to butadiene.

**Scope**

This program covers all employees.

**Key Responsibilities**

**Managers/Supervisors**

- Shall ensure that all employees are aware of the proper work procedures for butadiene
- Shall ensure that initial training is conducted for all new employees and that retraining is conducted when employee behaviors suggest that retraining is warranted.
- As part of the JSA and other hazard evaluation processes, identifies and evaluates butadiene hazards and potential exposures during planning and the conduct of work.
- Reviews and approves the Task-Specific Safety Analysis.
- As necessary, quantitatively determines the presence of butadiene in materials, substrates, and other media. This may involve the collection of samples for analysis by a qualified laboratory or field testing using acceptable test methods.
- Provides results of any butadiene survey to management/supervision, along with information regarding hazard potential and control measures. As appropriate, makes recommendations to management/supervision to maintain, modify, upgrade, or downgrade controls accordingly.
- Takes prompt corrective measures (or supports any Competent Person in this role) to eliminate hazards; such as recommending to management/supervision to implement or modify engineering, administrative, work practice, and personal protection (including respiratory protection) controls.
- Conducts periodic exposure assessment.
- As appropriate, assists management/supervision in ensuring that workers have the necessary training and medical surveillance based upon the activity and hazard.



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- In evaluating butadiene hazards and specifying controls for a job, (a) utilizes reliable historical exposure monitoring data generated for other similar operations or activities, (b) utilizes objective data, and/or (c) plans and conducts initial monitoring to determine exposures and assess the effectiveness of hazard controls.
- Conducts initial and periodic exposure monitoring in accordance with National Institute for Occupational Safety and Health (NIOSH)/OSHA methods if lacking historical or objective data.
- Maintains effective records of jobs monitored, so that a historical database can be used to specify controls and eliminate unnecessary and redundant monitoring for future activities.
- Supports project management/supervision in responding to exposures above the PEL when workers were not adequately protected.

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- As appropriate, participates in pre-job and daily worker briefings regarding task-specific butadiene hazards and controls, work practices/plans (such as JSAs), and other applicable information, including any changes that are made to controls or to the work practices or plans.

**Employees**

- Shall follow all requirements regarding the safe work procedures for butadiene.

**Possible Locations**

Butadiene may be present at refineries and petrochemical plants. Butadiene is used in the production of styrenebutadiene rubber and polybutadiene rubber for the tire industry. Other uses include copolymer latexes for carpet backing and paper coating as well as resins and polymers for pipes and automobile and appliance parts. It is also used as an intermediate in the production of such chemicals as fungicides.

**Butadiene Procedure**

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**Characteristics**

Butadiene is a flammable, colorless gas with a mild, aromatic odor at room temperature and pressure. Butadiene may also exist as a cryogenic liquid. Butadiene is insoluble in water, stable, and reacts with oxidizers.

**Physical Hazards**

- Flammable gas
- Explosive peroxides
- Fire hazard when exposed to heat, flame, or strong oxidizers
- Release of toxic gases such as carbon monoxide during a fire



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**Health Hazards**

- There are no recorded cases of accidental exposures at high levels that have caused death in humans, but this could occur.
- Overexposure can cause respiratory and eye irritation ☐ Contact with liquid butadiene can cause burns and frostbite ☐ Acute (short term) health hazards include:
  - Central nervous system effects
  - Blurred vision
  - Nausea
  - Fatigue
  - Headache
  - Decreased blood pressure
  - Decreased pulse rate
  - Unconsciousness
- Chronic (long term) health hazards include:

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- Cancers of the lymphohematopoietic system (carcinogen)
- Lymphoma
- Leukemia
- Potential reproductive toxicity

**Practices**

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**Exposure Monitoring**

Monitoring or measuring of employee exposure shall be conducted when exposure to butadiene is at or above the action level on 30 or more days a year or when exposure is at or above the PELs for 10 days or more a year or following an emergency situation.

**Regulated Areas**

Regulated areas shall be established when exposure to an employee is or is expected to be in excess of the PEL. Regulated areas shall be marked with warning signs to alert employees and access is restricted to authorized persons only.

**Contingency Planning**

RELIANT HOLDINGS AND ITS AFFILIATES shall be aware of owner's contingency plan provisions. Employees must be informed where butadiene is used in host facility and aware of additional plant safety rules.

**Respiratory Protection & PPE**

- Eye and skin protection should be worn where exposures to liquid butadiene may occur.



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**BUTADIENE AWARENESS**

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- Respirators may be required where exposures are above the permissible exposure limit, and emergency respirators may be required where releases could occur.
- Contact lenses should not be worn when working with this chemical.

**Fire Protection**

Fire extinguishers shall be readily available and smoking prohibited in areas where butadiene is present or where butadiene may be released.

**Training**

Training shall be provided on the health hazards and any use/handling requirements for butadiene at time of initial assignment and annually. RELIANT HOLDINGS AND ITS AFFILIATES will assure employee participation and maintain a written record of the training contents. This training will include:

- Hazard communication training for potentially exposed employees.  Training specified by the applicable butadiene standard.

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- Respirator training if respirators are to be used.
- Provide information to workers regarding task-specific butadiene hazards and control methods, the JSA, work practices, medical surveillance and other applicable information, including any changes that are made to these controls.
- Provide training annually, as appropriate, to workers who continue to have exposure to butadiene at or above the action level on any one day.
- All training will be recorded and include the identity of the employee trained, the signature of the person who conducted the training and the date of the training.