Dibutyl phthalate SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

* Product Name: Dibutyl phthalate
* Catalog Number: S5377
* CAS Number: 84-74-2
* IUPAC Name: 1,2-Benzenedicarboxylic acid, 1,2-dibutyl ester

Relevant identified uses and uses advised against

* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

* Company: Selleck Chemicals
* TollFree: +1 877 796-6397
* Tel: +1 832 582-8158
* Fax: +1 832 582-8590

Emergency telephone number

* Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Acute toxicity (oral): Category 5. H303
Skin irritation: Category 3. H316
Skin sensitization: Category 1. H317
Eye irritation: Category 2. H320
Specific target organ toxicity (single exposure): Category 3. H335
Reproductive toxicity: Category 1. H360
Not classified. H360D
Reproductive toxicity: Category 2. H361
Specific target organ toxicity (single exposure): Category 1. H370
Specific target organ toxicity (repeated exposure): Category 1. H372
Specific target organ toxicity (repeated exposure): Category 2. H373
Acute aquatic toxicity: Category 1. H400
Chronic aquatic toxicity: Category 2. H411

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word Danger

Hazard statement(s)	H303: May be harmful if swallowed H316: Causes mild skin irritation H317: May cause an allergic skin reaction H320: Causes eye irritation H335: May cause respiratory irritation H360: May damage fertility or the unborn child H360D: May damage the unborn child H361: Suspected of damaging fertility or the unborn child H370: Causes damage to organs H372: Causes damage to organs through prolonged or repeated exposure H373: May causes damage to organs through prolonged or repeated exposure H400: Very toxic to aquatic life H411: Toxic to aquatic life with long lasting effects
Precautionary statement(s)	None.
Prevention	P203: Obtain, read and follow all safety instructions before use. P260: Do not breathe dust/fume/gas/mist/vapors/spray. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P264: Wash hands thoroughly after handling. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Response	P301+P317: IF SWALLOWED: Get medical help. P302+P352: IF ON SKIN: wash with plenty of water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P308+P316: IF exposed or concerned: Get emergency medical help immediately. P318: if exposed or concerned, get medical advice. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P332+P317: If skin irritation occurs: Get medical help. P333+P317: If skin irritation or rash occurs: Get medical help. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P362+P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage.
Storage	P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Dibutyl phthalate

CAS Number: 84-74-2

PubChem CID: 3026

Molecular formula: C16H22O4

Molecular weight: 278.34 g/mol

IUPAC name: dibutyl benzene-1,2-dicarboxylate

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Remove contaminated clothes. Rinse skin with plenty of water or shower.

Eye contact: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion: Rinse mouth. Refer for medical attention .

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO2), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

CAUTION: Fire involving Safety devices (UN3268) and Fire suppressant dispersing devices (UN3559) may have a delayed activation and a risk of hazardous projectiles. Extinguish the fire at a safe distance.

SMALL FIRE: Dry chemical, CO2, water spray or regular foam.

LARGE FIRE: Water spray, fog or regular foam. Do not scatter spilled material with high-pressure water streams. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal.

FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. (ERG, 2024)

Use foam, dry powder, carbon dioxide.

Extinguish with dry chemicals ... or carbon dioxide.

/Wear/ self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide.

Water or foam may cause frothing.

For more Fire Fighting Procedures (Complete) data for DIBUTYL PHTHALATE (6 total), please visit the HSDB record page.

Aerosols from heated dibutyl phthalate may cause irritation of the eyes and upper-respiratory tract.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 315 °F (NTP, 1992)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in vermiculite, sand or inert absorbent. Then store and dispose of according to local regulations.

1) Remove all ignition sources. 2) Ventilate area ... 3) for small quant, absorb on paper towels. Evaporate in a safe place (such as fume hood). Allow sufficient time for evaporating vapors to completely clear hood ductwork. Burn paper in a suitable location ... large quant ... atomized in ... combustion chamber.

Environmental considerations-land spill: Dig a pit, pond, lagoon, or holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash or cement powder.

Environmental considerations-water spill: Use natural barriers or oil spill control booms to limit spill travel. Use surface active agent (eg detergent, soaps, alcohols) if approved by EPA. Inject "universal" gelling agent to solidify encircled spill and increase effectiveness of booms. Remove trapped material with suction hoses. If dissolved, in

region of 10 ppm or greater concentration, apply activated carbon at ten times the spilled amount. Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates.

Environmental considerations-air spill: Apply water spray or mist to knock down vapors.

ACCIDENTAL RELEASE MEASURES Personal precautions, protective equipment and emergency procedures Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U069, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

Good candidate for incineration by liquid injection with a temperature of 650-1600 °C with a residence time of 0.1-2 seconds; rotary kiln with a temperature of 820-1,600 °C with a residence time for liquids and gases: seconds, solids: hours; fluidized bed with a temperature of 450-980 °C with a residence time for liquids and gases: seconds, solids: longer.

Chemical Treatability of Dibutyl Phthalate; Concentration Process: Activated Carbon; Chemical Classification: Phthalates; Scale of Study: Batch flow, Laboratory scale; Type of Wastewater Used: Pure compound (one solute in a solvent); Results of Study: 100% reduction; 38% desorbed from carbon by elutriation with solvent; (Calgon FS-300 used. Solvents included pentane-acetone, diethyl ether, methylene chloride-acetone, chloroform-acetone, and acetone.)

Chemical Treatability of Dibutyl Phthalate; Concentration Process: Resin Adsorption; Chemical Classification: Phthalates; Scale of Study: Batch flow, Laboratory Scale; Type of Wastewater Used: Pure compound (one solute in a solvent; Results of Study: 100% reduction; 108% desorbed from resin by elutriation with solvent. (Amberlite XAD-2 used. Solvents included pentane- acetone, diethyl ether, methylene chloride-acetone, chloroform-acetone, and acetone.)

For more Disposal Methods (Complete) data for DIBUTYL PHTHALATE (6 total), please visit the HSDB record page.

SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. Ensure that the local ventilation moves the contaminant away from the worker.

SRP: The scientific literature for the use of contact lenses by industrial workers is inconsistent. The benefits or detrimental effects of wearing contact lenses depend not only upon the substance, but also on factors including the form of the substance, characteristics and duration of the exposure, the uses of other eye protection equipment, and the hygiene of the lenses. However, there may be individual substances whose irritating or corrosive properties are such that the wearing of contact lenses would be harmful to the eye. In those specific cases, contact lenses should not be worn. In any event, the usual eye protection equipment should be worn even when contact lenses are in place.

If material not on fire and not involved in fire: Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers. Build dikes to contain flow as necessary.

Personnel protection: Avoid breathing vapors or dusts. ... Do not handle broken packages unless wearing appropriate personal protective equipment. Wash away any material which may have contacted the body with copious amounts of water or soap and water.

For more Preventive Measures (Complete) data for DIBUTYL PHTHALATE (7 total), please visit the HSDB record page.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]:

Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent dust cloud. For Asbestos, avoid inhalation of dust. Cover spill with plastic sheet or tarp to minimize spreading. Do not clean up or dispose of, except under supervision of a specialist.

SMALL DRY SPILL: With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.

SMALL SPILL: Pick up with sand or other non-combustible absorbent material and place into containers for later disposal.

LARGE SPILL: Dike far ahead of liquid spill for later disposal. Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent entry into waterways, sewers, basements or confined areas. (ERG, 2024)

Separated from strong oxidants.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

Store in original container. Keep upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

0.58 mg/m

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: N-butyl phthalate is a colorless oily liquid. It is insoluble in water. The primary hazard is the threat to the environment. Immediate steps should be taken to limit its spread to the environment. Since it is a liquid it can easily penetrate the soil and contaminate groundwater and nearby streams. It is combustible though it may take some effort to ignite. It is used in paints and plastics and as a reaction media for chemical reactions.

b) Odor: Slight, aromatic odor

c) Odor threshold: No data available

d) pH: No data available

e) Melting point/freezing point: -31 °F (NTP, 1992)

f) Initial boiling point and boiling range: 644 °F at 760 mmHg (NTP, 1992)

g) Flash point: 315 °F (NTP, 1992)

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: 1 mmHg at 297 °F ; 1.1 mmHg at 302 °F (NTP, 1992)

l) Vapor density: No data available

m) Relative density: 1.049 at 68 °F (USCG, 1999) - Denser than water; will sink

n) Water solubility: less than 1 mg/mL at 68 °F (NTP, 1992)

o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 4.7

p) Auto-ignition temperature: 757 °F (USCG, 1999)

q) Decomposition temperature: No data available

r) Viscosity: 0.203 poise at 20 °C

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 52.6 Å²

Complexity: 271

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Liquid chlorine reacts explosively with ...dibutyl phthalate.

Nitrates; strong oxidizers, alkalis and acids; liquid chlorine.

A mixture of the ester /dibutyl phthalate/ and liquid chlorine confined in a stainless steel bomb reacted explosively at 118 °C.

Strong oxidizing agents, nitrates, bases, acids, chlorine

Nitrates; strong oxidizers, alkalis & acids; liquid chlorine

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO□).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Oral Acute Reference Dose (RfDoa)(mg/kg-day): 0.5

Oral Acute Reference Dose Reference: ATSDR Final

Skin corrosion/irritation:

No data available.

Serious eye damage/eye irritation:

No data available.

Respiratory or skin sensitization:

May cause an allergic skin reaction (H317).

Germ cell mutagenicity:

No data available.

Carcinogenicity:

No data available.

Reproductive toxicity:

May damage fertility or the unborn child (H360).

Specific target organ toxicity (single exposure):

H370, H372, H373

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

Dibutyl phthalate

Group 2B: Possibly carcinogenic to humans

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Di-n-butyl phthalate

TR-600: Toxicology and Carcinogenesis Studies of Di-n-butyl Phthalate (CASRN 84-74-2) Administered in Feed to Sprague Dawley (Hsd:Sprague Dawley SD) Rats and B6C3F1/N Mice (2021)

04/02/21

Equivocal Evidence

No Evidence

No Evidence

No Evidence

Under the conditions of these 2â□□year feed studies, there was equivocal evidence of carcinogenic activity of di-n-butyl phthalate (DBP) in male Hsd:

Exposure routes:

The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

inhalation, ingestion, skin and/or eye contact

Oral (L133) ; inhalation (L133) ; dermal (L133)

Signs and symptoms of exposure:

Redness. Pain.

Abdominal pain. Diarrhoea. Nausea. Vomiting.

irritation eyes, upper respiratory system, stomach

Skin contact with di-n-butyl phthalate may cause mild irritation. (L133)

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50; Species: Anas platyrhynchos (Mallard duck) age 10 days; oral >5000 ppm for 8 days

LC50; Species: Eisenia fetida (earthworm); contact test in which DBP was applied to filter paper 1.4 mg/sq cm for 48 hr

LC50; Species: Scenedesmus acutus var. acutus (Green Algae) 5-6x 10+5 cells/mL; Conditions: freshwater, static, 25 °C; Concentration: 210 ug/L for 96 hr

EC50; Species: Scenedesmus subspicatus (Green Algae) exponential growth phase; Conditions: freshwater, static, 24 °C, pH 8.0-9.3; Concentration: 3500 ug/L for 48 hr; Effect: population, decreased biomass /formulation/

For more Ecotoxicity Values (Complete) data for DIBUTYL PHTHALATE (82 total), please visit the HSDB record page.

/BIRDS and MAMMALS/ The effects of a diet of 10 mg DBP/kg on egg shell thickness, breaking strength, permeability and shell structure of ring dove (Streptophelia risoria) eggs were examined in a 3-week experiment ... . Egg shell thickness was found to be decreased (10%), whereas the water permeability increased (23%). A 15% decrease in shell thickness is considered significant for reproductive effects. Rapid recovery occurred upon cessation of exposure.

/AQUATIC SPECIES/ The toxicities of di-n-butyl phthalate (DBP) ... was assessed by measuring the effect of exposure ... on the fecundity of Daphnia magna and on the hatching and survival of the early life stages of the fathead minnow Pimephales promelas. For Daphnia magna, exposure to 1.8 mg/L DBP ... caused a significant reduction in reproduction.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): 4.7

Potential for bioaccumulation exists (Log P > 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Class 9

DOT label: Class 9

14.4 Packing group

Packing group III

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

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

Not applicable.

15. REGULATORY INFORMATION

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

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered under REACH

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: 1,2-Benzenedicarboxylic acid, 1,2-dibutyl ester Specific Information Requirement: Obligations to provide information apply. These obligations are: 1. A person introducing this chemical must

- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Developmental Toxicity; Endocrine Toxicity; Hepatotoxicity and Digestive System Toxicity; Immunotoxicity; Other Toxicological Hazard Traits; Reproductive Toxicity; Respiratory Toxicity

- EFSA Legal Basis: Regulation (EC) No 178/2002 (amended)

- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)

- Atmospheric Standards: Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in spec

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.