



# Right to Know Hazardous Substance Fact Sheet

Common Name: **TERPHENYLS (mixed isomers)**

Synonyms: Diphenylbenzenes

Chemical Name: Terphenyl

Date: November 1999 Revision: June 2007

CAS Number: 26140-60-3

RTK Substance Number: 3650

DOT Number: None

## Description and Use

**Terphenyls** are colorless or light-yellow solids. **Terphenyl** mixtures are used as heat storage and transfer agents, as textile dye carriers, and as intermediates for lubricants.

This fact sheet can be used for the following isomers:

- 1,2-Diphenylbenzene (*o*-Terphenyl) CAS#: 84-15-1
- 1,3-Diphenylbenzene (*m*-Terphenyl) CAS#: 92-06-8
- 1,4-Diphenylbenzene (*p*-Terphenyl) CAS#: 92-94-4

## Reason for Citation

- ▶ **Terphenyls** are on the Right to Know Hazardous Substance List because they are cited by OSHA, ACGIH, NIOSH and NFPA.

**EMERGENCY RESPONDERS >>>> SEE BACK PAGE**

## Hazard Summary

Hazard Rating	NJDOH	NFPA
<b>HEALTH</b>	-	1
<b>FLAMMABILITY</b>	-	1
<b>REACTIVITY</b>	-	0
MAY BURN, BUT DO NOT READILY IGNITE POISONOUS GASES ARE PRODUCED IN FIRE CONTAINERS MAY EXPLODE IN FIRE		

*Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe*

- ▶ **Terphenyls** can affect you when inhaled.
- ▶ Contact can irritate and burn the skin and eyes.
- ▶ Inhaling **Terphenyls** can irritate the nose, throat and lungs.
- ▶ Exposure may affect the liver and kidneys.

**SEE GLOSSARY ON PAGE 5.**

## FIRST AID

### Eye Contact

- ▶ Immediately flush with large amounts of cool water for at least 15 minutes, occasionally lifting upper and lower lids. Remove contact lenses, if worn, while rinsing.

### Skin Contact

- ▶ Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

### Inhalation

- ▶ Remove the person from exposure.
- ▶ Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
- ▶ Transfer promptly to a medical facility.

## EMERGENCY NUMBERS

Poison Control: 1-800-222-1222

CHEMTREC: 1-800-424-9300

NJDEP Hotline: 1-877-927-6337

National Response Center: 1-800-424-8802

## Workplace Exposure Limits

OSHA: The legal airborne permissible exposure limit (PEL) is **9 mg/m<sup>3</sup>**, not to be exceeded at any time.

NIOSH: The recommended airborne exposure limit (REL) is **5 mg/m<sup>3</sup>**, which should not be exceeded at any time.

ACGIH: The threshold limit value (TLV) is **5 mg/m<sup>3</sup>**, which should not be exceeded at any time.

## Determining Your Exposure

- ▶ Read the product manufacturer's Material Safety Data Sheet (MSDS) and the label to determine product ingredients and important safety and health information about the product mixture.
- ▶ For each individual hazardous ingredient, read the New Jersey Department of Health Hazardous Substance Fact Sheet, available on the RTK website ([www.nj.gov/health/eoh/rtkweb](http://www.nj.gov/health/eoh/rtkweb)) or in your facility's RTK Central File or Hazard Communication Standard file.
- ▶ You have a right to this information under the New Jersey Worker and Community Right to Know Act, the Public Employees Occupational Safety and Health (PEOSH) Act if you are a public worker in New Jersey, and under the federal Occupational Safety and Health Act (OSHA) if you are a private worker.
- ▶ The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard (29 CFR 1910.1200) requires private employers to provide similar information and training to their employees.

This Fact Sheet is a summary of available information regarding the health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

## Health Hazard Information

### Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Terphenyls**:

- ▶ Contact can irritate and burn the skin and eyes.
- ▶ Inhaling **Terphenyls** can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath.

### Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Terphenyls** and can last for months or years:

### Cancer Hazard

- ▶ According to the information presently available to the New Jersey Department of Health, **Terphenyls** have not been tested for their ability to cause cancer in animals.

### Reproductive Hazard

- ▶ According to the information presently available to the New Jersey Department of Health, **Terphenyls** have not been tested for their ability to affect reproduction.

### Other Effects

- ▶ **Terphenyls** may affect the liver and kidneys.
- ▶ Repeated exposure can cause drying and cracking of the skin.

## Medical

### Medical Testing

If symptoms develop or overexposure is suspected, the following are recommended:

- ▶ Liver and kidney function tests

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under the OSHA Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).

### Mixed Exposures

- ▶ Because more than light alcohol consumption can cause liver damage, drinking alcohol may increase the liver damage caused by **Terphenyls**.

## Workplace Controls and Practices

Very toxic chemicals, or those that are reproductive hazards or sensitizers, require **expert advice** on control measures if a less toxic chemical cannot be substituted. Control measures include: (1) enclosing chemical processes for severely irritating and corrosive chemicals, (2) using local exhaust ventilation for chemicals that may be harmful with a single exposure, and (3) using general ventilation to control exposures to skin and eye irritants. For further information on workplace controls, consult the NIOSH document on *Control Banding* at [www.cdc.gov/niosh/topics/ctrlbanding/](http://www.cdc.gov/niosh/topics/ctrlbanding/).

The following work practices are also recommended:

- ▶ Label process containers.
- ▶ Provide employees with information and training concerning their hazards.
- ▶ Monitor airborne chemical concentrations.
- ▶ Use engineering controls if concentrations exceed recommended exposure levels.
- ▶ Provide eye wash fountains and emergency showers.
- ▶ Wash or shower if skin comes in contact with a hazardous material.
- ▶ Always wash at the end of the workshift.
- ▶ Change into clean clothing if clothing becomes contaminated.
- ▶ Do not take contaminated clothing home.
- ▶ Special training is required to wash contaminated clothing.
- ▶ Do not eat, smoke, or drink in areas where chemicals are being handled, processed or stored.

- ▶ Wash hands carefully before eating, smoking, drinking, applying cosmetics or using the toilet.
- ▶ Use a vacuum or a wet method to reduce dust during clean-up. DO NOT DRY SWEEP.

### Personal Protective Equipment

The OSHA Personal Protective Equipment Standard (29 CFR 1910.132) requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

#### Gloves and Clothing

- ▶ Avoid skin contact with **Terphenyls**. Wear personal protective equipment made from material which can not be permeated and/or degraded by this substance. Safety equipment suppliers/manufacturers can provide recommendations on the most protective glove/clothing material for your operation.
- ▶ Safety equipment manufacturers recommend *Rubber* for gloves.
- ▶ All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

#### Eye Protection

- ▶ Wear eye protection side shields or goggles.
- ▶ Contact lenses should not be worn when working with this substance.
- ▶ Wear a face shield along with goggles when working with corrosive, highly irritating or toxic substances.

#### Respiratory Protection

**Improper use of respirators is dangerous.** Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams as described in the OSHA Respiratory Protection Standard (29 CFR 1910.134).

- ▶ Where the potential exists for exposure over **5 mg/m<sup>3</sup>**, use a NIOSH approved air-purifying, particulate filter respirator with an N95 filter. If **Terphenyls** are used in a heated process, an organic vapor cartridge with an N95 prefilter should be used. More protection is provided by a full facepiece respirator than by a half-mask respirator, and even greater protection is provided by a powered-air purifying respirator.
- ▶ If while wearing a filter or cartridge respirator you can smell, taste, or otherwise detect **Terphenyls**, or if while wearing particulate filters abnormal resistance to breathing is experienced, or eye irritation occurs while wearing a full facepiece respirator, leave the area immediately. Check to make sure the respirator-to-face seal is still good. If it is, replace the filter or cartridge. If the seal is no longer good, you may need a new respirator.
- ▶ Be sure to consider all potential exposures in your workplace. You may need a combination of filters, prefilters or cartridges to protect against different forms of a chemical (such as vapor and mist) or against a mixture of chemicals.

- ▶ Where the potential exists for exposure over **50 mg/m<sup>3</sup>**, use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
- ▶ Exposure to **500 mg/m<sup>3</sup>** is immediately dangerous to life and health. If the possibility of exposure above **500 mg/m<sup>3</sup>** exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode equipped with an emergency escape air cylinder.

### Fire Hazards

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

- ▶ **Terphenyls** may burn, but do not readily ignite.
- ▶ Use dry chemical, CO<sub>2</sub>, water spray, an alcohol-resistant foam or other foaming agent.
- ▶ POISONOUS GASES ARE PRODUCED IN FIRE.
- ▶ CONTAINERS MAY EXPLODE IN FIRE.
- ▶ Use water spray to keep fire-exposed containers cool.

### Spills and Emergencies

If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

If **Terphenyls** are spilled, take the following steps:

- ▶ Evacuate personnel and secure and control entrance to the area.
- ▶ Eliminate all ignition sources.
- ▶ Collect powdered material in the most convenient and safe manner and deposit in sealed containers.
- ▶ Ventilate and wash area after clean-up is complete.
- ▶ It may be necessary to contain and dispose of **Terphenyls** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

### Handling and Storage

Prior to working with **Terphenyls** you should be trained on its proper handling and storage.

- ▶ **Terphenyls** are not compatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE).
- ▶ Store in tightly closed containers in a cool, well-ventilated area.

Occupational Health Information  
Resources

The New Jersey Department of Health offers multiple services in occupational health. These include: Right to Know Information Resources, Public Presentations, General References, Industrial Hygiene Information, Surveys and Investigations, and Medical Evaluation.

**For more information, please contact:**

New Jersey Department of Health  
Right to Know  
PO Box 368  
Trenton, NJ 08625-0368  
Phone: 609-984-2202  
Fax: 609-984-7407  
E-mail: [rtk@doh.state.nj.us](mailto:rtk@doh.state.nj.us)  
Web address: <http://www.nj.gov/health/eoh/rtkweb>

***The Right to Know Hazardous Substance Fact Sheets  
are not intended to be copied and sold  
for commercial purposes.***

## GLOSSARY

**ACGIH** is the American Conference of Governmental Industrial Hygienists. They publish guidelines called Threshold Limit Values (TLVs) for exposure to workplace chemicals.

**Boiling point** is the temperature at which a substance can change its physical state from a liquid to a gas.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is assigned by the Chemical Abstracts Service to identify a specific chemical.

**CFR** is the Code of Federal Regulations, which are the regulations of the United States government.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes destruction of human skin or severe corrosion of containers.

**DEP** is the New Jersey Department of Environmental Protection.

**DOT** is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

**EPA** is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

**IARC** is the International Agency for Research on Cancer, a scientific group.

**Ionization Potential** is the amount of energy needed to remove an electron from an atom or molecule. It is measured in electron volts.

**IRIS** is the Integrated Risk Information System database of the federal EPA that classifies chemicals according to their cancer-causing potential.

**LEL** or **Lower Explosive Limit** is the lowest concentration in air below which there is not enough fuel (gas or vapor) to continue an explosion.

**mg/m<sup>3</sup>** means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

**NAERG** is the North American Emergency Response Guidebook. It is a guide for emergency responders for transportation emergencies involving hazardous substances.

**NFPA** is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

**NIOSH** is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

**NTP** is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

**OSHA** is the federal Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

**PEOSHA** is the New Jersey Public Employees Occupational Safety and Health Act. PEOSH adopts and enforces health and safety standards in public workplaces.

**Permeated** is the movement of chemicals through protective materials.

**PIH** is a DOT designation for chemicals which are Poison Inhalation Hazards.

**ppm** means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

**STEL** is a Short Term Exposure Limit which is usually a 15-minute exposure that should not be exceeded at any time during a work day.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

**UEL** or **Upper Explosive Limit** is the highest concentration in air above which there is too much fuel (gas or vapor) to begin a reaction or explosion.

**Vapor Density** is the ratio of the weight of a given volume of one gas to the weight of another (usually *Hydrogen*), at the same temperature and pressure.

The **vapor pressure** is a measure of how readily a liquid or a solid mixes with air at its surface. A higher vapor pressure indicates a higher concentration of the substance in air and therefore increases the likelihood of breathing it in.

Common Name: **TERPHENYLS (mixed isomers)**

Synonyms: Diphenylbenzenes

CAS No: 26140-60-3

 Molecular Formula:  $C_6H_5C_6H_4C_6H_5$ 

RTK Substance No: 3650

Description: Colorless or light-yellow solids

**HAZARD DATA**

Hazard Rating	Firefighting	Reactivity
<b>1 - Health</b> <b>1 - Fire</b> <b>0 - Reactivity</b>  DOT#: N/A ERG Guide #: N/A Hazard Class: N/A	- May burn, but do not readily ignite. - Use dry chemical, CO <sub>2</sub> , water spray, an alcohol-resistant foam or other foaming agent. - POISONOUS GASES ARE PRODUCED IN FIRE. - CONTAINERS MAY EXPLODE IN FIRE. - Use water spray to keep fire-exposed containers cool.	- Incompatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE).

**SPILL/LEAKS**
**Isolation Distance:** 25 meters (75 feet)

- Vacuum or sweep spilled material into containers.
- This chemical can bioaccumulate in fish.

**PHYSICAL PROPERTIES**

<b>Odor Threshold:</b>	No Information
<b>Flash Point:</b>	325°F – 405°F (163°C – 207°C)
<b>LEL:</b>	N/A
<b>UEL:</b>	N/A
<b>Vapor Density:</b>	7.9 (air = 1)
<b>Vapor Pressure:</b>	0.01 mm Hg at 68°F (20°C)
<b>Water Solubility:</b>	Insoluble
<b>Boiling Point:</b>	630°F (332°C)
<b>Melting Point:</b>	133°F – 415°F (56°C – 213°C)

**EXPOSURE LIMITS**

<b>OSHA PEL:</b>	9 mg/m <sup>3</sup> Ceiling
<b>NIOSH REL:</b>	5 mg/m <sup>3</sup> Ceiling
<b>ACGIH TLV:</b>	5 mg/m <sup>3</sup> Ceiling
<b>IDLH LEVEL:</b>	500 mg/m <sup>3</sup>

**PROTECTIVE EQUIPMENT**

<b>Gloves:</b>	Rubber
<b>Coverall:</b>	No Information
<b>Boot:</b>	No Information
<b>Respirator:</b>	>5 mg/m <sup>3</sup> N95 (If heat is involved use an Organic Vapor Cartridge along with an N95) >50 mg/m <sup>3</sup> SA

**HEALTH EFFECTS**

<b>Eyes:</b>	Irritation, burning
<b>Skin:</b>	Irritation, burning
<b>Acute:</b>	Nose, throat, and lung irritation with coughing, and shortness of breath
<b>Chronic:</b>	Cancer – Not Tested Can affect the liver and kidneys

**FIRST AID AND DECONTAMINATION**

- Flush eyes with cool water for at least 15 minutes.
- Remove contaminated clothing and wash contaminated skin with soap and water.
- Remove person from exposure.
- Transfer to a medical facility.