

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product Identifier**

<b>Product Description:</b>	<b>Tetraphenylgermanium</b>
<b>Cat No. :</b>	<b>35842</b>
<b>CAS No</b>	1048-05-1
<b>Molecular Formula</b>	C <sub>24</sub> H <sub>20</sub> Ge

**Relevant identified uses of the substance or mixture and uses advised against**

<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	No Information available

**Details of the supplier of the safety data sheet**
**Importer**

Fisher Scientific Korea  
 D5,D6, Incheon Airport Logistics Complex  
 150, Gonghangdong-Ro 296 Beon-Gil  
 Jung-Gu, Incheon  
 Tel: +82-1661-9555  
 Fax: +82-2-2023-0603

**Supplier**

Thermo Fisher Scientific Chemicals, Inc.  
 30 Bond Street  
 Ward Hill, MA 01835-8099

<b>E-mail address</b>	Chem.KR@thermofisher.com
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**Emergency Telephone Number**

**Emergency telephone: Medical: +(82) 070-7686-0086 or + 1-703-741-5970**  
**CHEMTREC: 080 822 1374 (Local), CHEMTREC: 1-800-424-9300 or + 1-703-527-3887**  
**Korea: 00-308-13-2549** (24 hours a day, 7 days a week)

## SECTION 2: HAZARDS IDENTIFICATION

**Classification of the substance or mixture**
**Physical hazards**

Based on available data, the classification criteria are not met

**Health hazards**

Acute Oral Toxicity	Category 4
Acute Dermal Toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

**Environmental hazards**

Based on available data, the classification criteria are not met

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## Label Elements



### Signal Word

### Warning

#### Hazard Statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

#### Precautionary Statements

##### Prevention

P264 - Wash hands and face thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P271 - Use only outdoors or in a well-ventilated area

##### Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P330 - Rinse mouth

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P312 - Call a POISON CENTER or doctor if you feel unwell

P321 - Specific treatment (see supplemental first aid instructions on this label)

P322 - Specific measures (see supplemental first aid instructions on this label)

P362 + P364 - Take off contaminated clothing and wash it before reuse

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P332 + P313 - If skin irritation occurs: Get medical advice/attention

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

##### Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

##### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

#### Other Hazards

This product does not contain any known or suspected endocrine disruptors

#### NFPA

Health  
2

Flammability  
1

Instability  
0

Physical hazards  
N/A

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Germane, tetraphenyl-	No information available	1048-05-1	Not listed	99 - 100

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## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.
<b>Ingestion</b>	Clean mouth with water. Get medical attention.
<b>Inhalation</b>	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms and effects, both acute and delayed

No information available.

### Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation.

### Environmental precautions

See Section 12 for additional Ecological Information.

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## Methods and Material for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal.

## Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Handle product only in closed system or provide appropriate exhaust ventilation.

### Conditions for Safe Storage, Including any Incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

### Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	CAS No	Korea	ACGIH TLV	OSHA PEL
Germane, tetraphenyl-	1048-05-1	Not listed	Not listed	Not listed

Component	CAS No	European Union	The United Kingdom	Germany
Germane, tetraphenyl-	1048-05-1	Not listed	Not listed	Not listed

### ACGIH - Biological Exposure Indices

Component	CAS No	ACGIH - Biological Exposure Indices
Germane, tetraphenyl-	1048-05-1	Not listed

### Exposure Controls

#### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Protective gloves

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

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**Personal protective equipment** Use only those certified by the Korea Occupational Safety and Health Administration.  
**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators  
**Recommended Filter type:** Particulates filter conforming to EN 143  
 To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly  
 When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** No information available

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

**Appearance (Physical State, Color, etc.)** White Powder Solid

**Odor** No information available

**Odor Threshold** No data available

**pH** No information available

**Melting Point/Range** 231 - 233 °C / 447.8 - 451.4 °F

**Softening Point** No data available

**Boiling Point/Range** No information available

**Flash Point** No information available **Method -** No information available

**Evaporation Rate** Not applicable **Solid**

**Flammability (solid,gas)** No information available

**Explosion Limits** No data available

**Vapor Pressure** No data available

**Vapor Density** Not applicable **Solid**

**Specific Gravity / Density** No data available

**Bulk Density** No data available

**Water Solubility** Insoluble

**Solubility in other solvents** No information available

### Partition Coefficient (n-octanol/water)

Component	CAS No	log Pow
Germane, tetraphenyl-	1048-05-1	No data available

**Autoignition Temperature** Not applicable

**Decomposition Temperature** No data available

**Viscosity** Not applicable **Solid**

**Explosive Properties** No information available

**Oxidizing Properties** No information available

**Molecular Formula** C<sub>24</sub> H<sub>20</sub> Ge

**Molecular Weight** 381.02

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## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** No information available.

### Conditions to Avoid

Incompatible products. Exposure to moist air or water.

### Incompatible Materials

Strong oxidizing agents.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

#### Information on expected route of exposure

**Inhalation** Harmful by inhalation. Avoid breathing dust or spray mist.  
**Ingestion** May be harmful if swallowed.  
**Eyes** Avoid contact with eyes. Irritating to eyes.  
**Skin** Avoid contact with skin. May cause irritation. Harmful in contact with skin.

#### Information on Health Hazards

##### (a) acute toxicity;

**Oral** Category 4  
**Dermal** Category 4  
**Inhalation** Category 4

Component	CAS No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

##### (d) respiratory or skin sensitization;

**Respiratory** No data available  
**Skin** No data available

Component	CAS No	Test method	Test species	Study result
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available

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(e) germ cell mutagenicity; No data available

Component	CAS No	Test method	Test species	Study result
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available

(f) carcinogenicity; No data available

Component	CAS No	Test method	Test species / Duration	Study result
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available

There are no known carcinogenic chemicals in this product

Component	CAS No	IARC	NTP	ACGIH	OSHA	UK
Germane, tetraphenyl-	1048-05-1	Not listed	Not listed	Not listed	Not listed	Not listed

(g) reproductive toxicity; No data available

Component	CAS No	Test method	Test species / Duration	Study result
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available

(h) STOT-single exposure;  
Results / Target organs Category 3  
Respiratory system.

(i) STOT-repeated exposure;  
Target Organs No data available  
No information available.

(j) aspiration hazard;  
Not applicable  
Solid

Other Adverse Effects  
No information available.

Component	CAS No	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

## SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Component	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Germane, tetraphenyl-	1048-05-1	No data available	No data available	No data available	No data available

Persistence and degradability  
Persistence Insoluble in water.

Bioaccumulative potential May have some potential to bioaccumulate

Mobility in soil Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.

Ozone Depletion Potential

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Component	CAS No	Ozone Depletion Potential
Germane, tetraphenyl-	1048-05-1	Not listed

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

<b>Waste from Residues/Unused Products</b>	Waste is classified as hazardous. Dispose in accordance with the Wastes Control Act (폐기물관리법).
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

## SECTION 14: TRANSPORT INFORMATION

### Road and Rail Transport

<b>UN-No</b>	UN3467
<b>Proper Shipping Name</b>	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.
<b>Technical Shipping Name</b>	Tetraphenylgermanium
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

### IATA

<b>UN-No</b>	UN3467
<b>Proper Shipping Name</b>	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.
<b>Technical Shipping Name</b>	Tetraphenylgermanium
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III

### IMDG/IMO

<b>UN-No</b>	UN3467
<b>Proper Shipping Name</b>	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.
<b>Technical Shipping Name</b>	Tetraphenylgermanium
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	III
<b>Marine Pollutant</b>	No hazards identified

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

**Legend:** X - Listed '-' - Not Listed

### International Inventories

Component	CAS No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	ISHL	AICS
Germane, tetraphenyl-	1048-05-1	-	X	213-880-8	-	-	X	-	-		-

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)



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		for Major Accident Notification	for Safety Report Requirements		
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

## Korean National Regulations

Component	CAS No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Accident Precaution Chemicals (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

## National Fire Association - Dangerous Substances Minimum quantity requiring a permit

Component	CAS No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

## Control Parameters

Component	CAS No	Korea	ACGIH - Biological Exposure Indices
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ALFAA35842

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Germane, tetraphenyl-	1048-05-1	Not listed	Not listed
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## US Management Information

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable

CERCLA

Not applicable

Component	CAS No	CERCLA Extremely Hazardous Substances RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Germane, tetraphenyl-	1048-05-1	Not applicable	Not applicable	Not applicable

## GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Warning.

H319 - Causes serious eye irritation. H315 - Causes skin irritation. H335 - May cause respiratory irritation. H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.

P280 - Wear protective gloves/protective clothing/eye protection/face protection. P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

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First aid for chemical exposure, including the use of eye wash and safety showers.

Prepared By	Health, Safety and Environmental Department
Creation Date	15-Apr-2015
Revision Date	09-Jun-2024
Revision Number	6
Revision Summary	New emergency telephone response service provider.

## MOEL's Public Notice No. 2023-9 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**