

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Material Name**

Allyl tetraisopropylphosphorodiamidite

Details of the supplier of the safety data sheet

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Recommended Use

Pharmaceutical – Biomedical

Restrictions on Use

R&D Use Only.

SECTION 2: Hazards identification**GHS Classification**

Flammable Liquids - Category 4

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Eye Irritation - Category 2A

Specific Target Organ Toxicity - Single Exposure - Category 3 (respiratory system)

GHS Label Elements**Symbol(s)****Signal word**

Warning

Hazard statements**H227** Combustible liquid.**H315** Causes skin irritation.

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H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements**Prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing vapor or mist.

P264 Wash hands thoroughly after handling.

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

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

Response

P370+P378 In case of fire: Use appropriate media to extinguish.

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

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

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

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

P362+P364 Take off contaminated clothing and wash before reuse.

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 in accordance with local/regional/national/international regulations.

Other Hazards Which Do Not Result in Classification

None known.

SECTION 3: Composition / information on ingredients

CAS	Component Name	Percent	Japan ENCS Inventory #	Japan ISHL Inventory #
108554-72-9	Allyl tetraisopropylphosphorodiamidite	<100	--	--

SECTION 4: First aid measures**Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Symptoms: Immediate

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respiratory tract irritation, skin irritation, eye irritation

Symptoms: Delayed

No information on significant adverse effects.

Note to Physicians

Treat symptomatically and supportively.

SECTION 5: Firefighting measures**Suitable extinguishing media**

regular dry chemical, carbon dioxide, water spray, regular foam

Unsuitable Extinguishing Media

high-pressure water streams

Specific hazards arising from the chemical

Combustible liquid

Fire Fighting Measures

Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Avoid inhalation of material or combustion by-products. Dike for later disposal.

Combustion

oxides of carbon, oxides of nitrogen, oxides of phosphorus

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

SECTION 6: Accidental release measures**Personal precautions**

Wear personal protective clothing and equipment.

Environmental precautions

Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch spilled material. Stop leak if possible without personal risk. Prevent entry into waterways, sewers, basements, or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb with earth, sand or other non-combustible material and transfer to container. Use non-sparking tools during clean-up. Keep unnecessary people away, isolate hazard area and deny entry.

SECTION 7: Handling and storage**Handling Procedures**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing vapor or mist. Wash hands thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Storage Procedures

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

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Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store between 2 °C and 8 °C. Keep separated from incompatible substances.

Incompatibilities
oxidizing materials

SECTION 8: Exposure controls/personal protection

Component Exposure Limits

ACGIH and JSOH have not developed exposure limits for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering controls

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Eye protection

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Body protection

Wear appropriate chemical resistant clothing.

Hand protection

Wear appropriate chemical resistant gloves.

Respiratory Protection

Respirators depend on exposure level. SCBA with full face piece recommended during change outs and available in case of emergency.

SECTION 9: Physical and chemical properties
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Appearance	clear liquid	Physical State	liquid
Odor	fishy odor	Color	colorless
Odor Threshold	Not available	pH	Not available
Melting Point	Not available	Boiling Point	114 - 117 °C at 0.44 mmHg
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not applicable
Autoignition Temperature	Not available	Flash Point	86.67 °C
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	0.000375 mmHg @ 25 °C

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Vapor Density (air=1)	Not available	Specific Gravity (water=1)	0.9099
Water Solubility	Not available	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	0.9099 g/cm ³ at 25 °C
Physical Form	liquid	Molecular Formula	C ₁₅ H ₃₃ N ₂ O _P
Molecular Weight	288.41		

Other Property Information

No data available

SECTION 10: Stability and reactivity**Reactivity**

No hazardous reaction expected under normal handling.

Stability

Stable at normal temperatures and pressure.

Possibility of hazardous reactions

Will not occur.

Conditions to avoid

Avoid flames, sparks, and other sources of ignition. Avoid contact with incompatible materials.

Incompatible materials

oxidizing materials

Hazardous decomposition products**Thermal decomposition products**

oxides of carbon, oxides of nitrogen, oxides of phosphorus

SECTION 11: Toxicological information**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Acute Toxicity Estimate

No data available.

Immediate Effects

respiratory tract irritation, skin irritation, eye irritation

Delayed Effects

No information on significant adverse effects.

Skin Corrosivity/Irritation Data

skin irritation

Serious Eye Damage/Eye Irritation

eye irritation

Respiratory Sensitization

No data available

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Dermal Sensitization

No data available

Germ Cell Mutagenic Data

No data available

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Reproductive Effects Data

No data available

Tumorigenic Data

No data available

Specific Target Organ Toxicity - Single Exposure

respiratory system

Specific Target Organ Toxicity - Repeated Exposure

No target organs identified.

Aspiration hazard

No data available

Medical Conditions Aggravated by Exposure

No data available

SECTION 12: Ecological information**Component Analysis - Aquatic Toxicity**

No LOLI ecotoxicity data are available for this product's components.

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13: Disposal considerations**Waste residues**

Wastes should be treated and disposed by professionals certified by the governor of the local government, and hazards of the waste must be communicated sufficiently.

Disposal of Contaminated Packaging

Dispose containers in accordance with local regulations. When containers are empty, make sure all residues must be cleaned before disposal.

SECTION 14: Transport information**International Regulations****IATA Information:**

UN#: Not regulated

IMDG Information:

UN#: Not regulated

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ICAO Information:

UN#: Not regulated

International Bulk Chemical Code

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Domestic Regulations

Land transportation

The product shall be packaged and shipped in accordance with Fire Service Act

Water transportation

Not regulated

Air transportation

Not regulated

SECTION 15: Regulatory information

Japan Regulations

Industrial Safety and Health Law

Not regulated

Japan Designated Chemical Substances (PRTR Law)

Not regulated

Poisonous and Deleterious Substances Control Law

Not regulated

Fire Service Law - Product

Group 4 Flammable Liquids 3rd Class petroleums - insoluble Hazard rating - III

Civil Aeronautics Act

Not regulated

Ship Safety Act

Not regulated

Act on Port Regulations

Not regulated

Component Analysis - Inventory

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US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
No	No	No	No	No	No	No	No	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW, CN	VN (Draft)
No	No	No	No	No	No	No

SECTION 16: Other information

NFPA Ratings

Health: 2 Fire: 2 Instability: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

3/24/2021 - Update to Section(s) 1.

Preparation Date

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1/7/2021

Revision date

3/24/2021

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL), KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; KR REACH CCA - Korea Registration and Evaluation of Chemical Substances Chemical Control Act; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne - Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TH-TECI - Thailand - FDA Existing Chemicals Inventory (TECI); TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

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