



SAFETY DATA SHEET

US GHS

Revision Date 16-Sep-2016

Version 2

Issue Date No data available

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Dicyclopentadiene
Safety data sheet number	G7230
Alternate Name	DCPD
Recommended Use	Production of tires and other rubber products.
Company Name	The Goodyear Tire & Rubber Company, 200 Innovation Way, Akron, Ohio 44316-0001 U.S.A. Goodyear Canada Inc. 450 Kipling Ave. Etobicoke, Ontario M8Z 5E1 Canada
Company Phone Number	Technical Assistance 1.330.796.1906
24 Hour Emergency Phone Number	Goodyear / 24 hour Assistance 1.330.796.5111
Emergency Telephone	Chemtrec (USA) 1.800.424.9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Flammable liquids	Category 2

Emergency Overview

Signal word

Danger

Hazard statements

Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause cancer
May cause respiratory irritation
Highly flammable liquid and vapor



Appearance clear**Odor** Petroleum distillates**Physical state** Liquid**Precautionary statements****Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Wear eye/face protection
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Keep cool
 Use explosion-proof electrical/ventilating/lighting/equipment

Response

IF exposed or concerned: Get medical advice/attention

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention

Skin

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 If skin irritation occurs: Get medical advice/attention
 Wash contaminated clothing before reuse

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

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

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Other hazards

Harmful to aquatic life Harmful to aquatic life with long lasting effects
 15% of the mixture consists of ingredient(s) of unknown toxicity
 No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Dicyclopentadiene	77-73-6	85-98
Cyclopentene	142-29-0	0-5
1,3-Pentadiene, (Z)-	1574-41-0	0-5
1,3-Pentadiene, (E)-	2004-70-8	0-5
.beta.-Amylene-cis	627-20-3	0-5
Isoprene	78-79-5	0.0-0.3

4. FIRST AID MEASURES

First aid measures

General advice	Get medical attention immediately if symptoms occur
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention
Skin Contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower (Get medical attention immediately if irritation persists.)
Inhalation	Remove to fresh air. Artificial respiration and/or oxygen may be necessary. Call a POISON CENTER or doctor/physician if you feel unwell.
Ingestion	Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms	None known
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use: Water spray (fog). Carbon dioxide (CO₂). Foam. Dry chemical.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Extremely flammable. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous combustion products Carbon oxides.

Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	Yes.

Protective equipment and precautions for firefighters

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Remove all sources of ignition. All equipment used when handling the product must be grounded.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined

areas. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment	A vapor suppressing foam may be used to reduce vapors. Dike far ahead of liquid spill for later disposal.
Methods for cleaning up	Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Use only non-sparking tools. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Ensure adequate ventilation, especially in confined areas. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Use with local exhaust ventilation. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists.
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Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Must be inhibited and maintained under an inert atmosphere to prevent polymerization.
Incompatible materials	Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH:
Dicyclopentadiene 77-73-6	TWA: 5 ppm	(vacated) TWA: 5 ppm (vacated) TWA: 30 mg/m ³	TWA: 5 ppm TWA: 30 mg/m ³

Immediately Dangerous to Life or Health

Other Information	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).
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Appropriate engineering controls

Engineering Controls	Showers Eyewash stations Ventilation systems.
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Individual protection measures, such as personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Skin and body protection	Suitable protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. In case of insufficient ventilation, wear suitable respiratory equipment.
General Hygiene Considerations	When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Petroleum distillates
Appearance	clear		
Odor threshold	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	Not applicable	None known	
Melting point/freezing point	No data available	None known	
Boiling point / boiling range	150-190 / 302-374 °F		
Flash point	32 °C / 90 °F	Tag Closed Cup	
Evaporation rate	Not applicable	None known	
Flammability (solid, gas)	No data available	Upper flammability limits	No data available
		Lower flammability limit	No data available
None known		Vapor pressure	2 mm Hg @ 20 C
		Vapor density	4.5
None known		Specific Gravity	No data available
None known		Water solubility	insoluble
		Solubility in other solvents	No data available
None known		Partition coefficient	No data available
None known		Autoignition temperature	No data available
		Decomposition temperature	No data available

Other Information

Softening point	No data available
Molecular weight	Not applicable
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY**Reactivity**

Stable under normal conditions

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

May form explosive peroxides. Must be inhibited and maintained under an inert atmosphere to prevent polymerization.

Hazardous polymerization

Polymerization can occur.

Conditions to avoid

Heat, flames and sparks.

Incompatible materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon oxides.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information**

Inhalation	Harmful by inhalation. May cause irritation of respiratory tract. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Eye contact	Causes eye irritation.
Skin Contact	Causes skin irritation.
Ingestion	Harmful if swallowed. May cause additional affects as listed under "Inhalation".

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Dicyclopentadiene 77-73-6	= 346.5 mg/kg (Rat)	= 4380 mg/kg (Rabbit)	= 500 ppm (Rat) 4 h
Isoprene 78-79-5	-	> 1 mL/kg (Rat)	= 180 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms None known.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Irritating to skin.
Serious eye damage/eye irritation Irritating to eyes.
Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Isoprene 78-79-5		Group 2B	Reasonably Anticipated	X

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity No information available.
STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure No information available.
Target Organ Effects Central nervous system, Eyes, kidney, Respiratory system, Skin.
Aspiration hazard No information available.

Unknown Acute Toxicity 15% of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 298 mg/kg

ATEmix (inhalation-vapor) 9.5 mg/l

12. ECOLOGICAL INFORMATION**Ecotoxicity**

15% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to microorganisms	Daphnia magna (Water Flea)
Dicyclopentadiene 77-73-6	EC50 96 h: > 100 mg/L Pseudokirchneriella subcapitata	LC50 96 h: 10 - 14.2 mg/L static Pimephales promelas LC50 96 h: 11.5 - 17.6 mg/L static Lepomis macrochirus LC50 96 h: 13 - 19.5 mg/L static Oncorhynchus mykiss LC50 96 h: = 23 mg/L Lepomis macrochirus		EC50 48 h: = 11 mg/L Daphnia magna
Isoprene 78-79-5	EC50 96 h: > 1000 mg/L Scenedesmus quadricauda	LC50 96 h: 188.77 - 305.14 mg/L static Poecilia reticulata LC50 96 h: 32.5 -		EC50 48 h: = 140 mg/L Daphnia magna

		50.15 mg/L static Lepomis macrochirus LC50 96 h: 58.75 - 95.32 mg/L static Pimephales promelas		
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Bioaccumulation

An estimated BCF of 55 suggests the potential for bioconcentration in aquatic organisms is moderate¹.

Mobility

Very slow.

Persistence and degradability

NOT READILY BIODEGRADABLE.

Chemical Name	Partition coefficient
Dicyclopentadiene 77-73-6	2.89
Isoprene 78-79-5	3.2 - 4.5

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261)

Contaminated packaging Do not reuse container. Never pierce, drill, grind, cut, saw or weld any empty container.

US EPA Waste Number D001

14. TRANSPORT INFORMATION

DOT

UN/ID No 2048
Proper shipping name Dicyclopentadiene
Hazard Class 3
Packing Group III
Description UN2048, Dicyclopentadiene, 3, III
Emergency Response Guide Number 130

TDG

UN/ID No 2048
Proper shipping name Dicyclopentadiene
Hazard Class 3
Packing Group III
Marine pollutant This product contains a chemical which, although not listed, meets the IMDG criteria for being a severe marine pollutant.
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

MEX

UN/ID No 2048
Proper shipping name Dicyclopentadiene
Hazard Class 3
Packing Group III
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

UN/ID No 2048

Hazard Class 3
Packing Group III
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

IATA

UN/ID No 2048
Hazard Class 3
Packing Group III
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

IMDG

UN/ID No 2048
Hazard Class 3
Packing Group III
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

RID

UN/ID No 2048
Proper shipping name Dicyclopentadiene
Hazard Class 3
Packing Group III
Classification code 3
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

ADR

UN/ID No 2048
Hazard Class 3
Packing Group III
Classification code 3
Description UN2048, Dicyclopentadiene, 3, III, Marine Pollutant

UN/ID No 2048

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Dicyclopentadiene 77-73-6 (85-98)	X	X	Present		Present	X	Present	X	X
Cyclopentene 142-29-0 (0-5)	X	X	Present		Present	X	Present	X	X
1,3-Pentadiene, (Z)- 1574-41-0 (0-5)	X		Present		Present		Present	X	
1,3-Pentadiene, (E)- 2004-70-8 (0-5)	X	X	Present		Present		Present	X	X
.beta.-Amylene-cis 627-20-3 (0-5)	X	X	Present		Present	X	Present		
Isoprene 78-79-5 (0.0-0.3)	X	X	Present		Present	X	Present	X	X

Legend:

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

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

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

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Dicyclopentadiene - 77-73-6	77-73-6	98	1.0
Isoprene - 78-79-5	78-79-5	0.3	0.1

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Isoprene 78-79-5	100 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Isoprene 78-79-5	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Isoprene - 78-79-5	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Dicyclopentadiene 77-73-6	X	X	X
Cyclopentene 142-29-0	X	X	X
.beta.-Amylene-cis 627-20-3	X	X	X
Isoprene 78-79-5	X	X	X

International Regulations**Mexico - Grade**

No information available

Chemical Name	Carcinogenicity	Exposure Limits
Dicyclopentadiene		Mexico: TWA 5 ppm Mexico: TWA 30 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class

B2 - Flammable liquid
D2A - Very toxic materials
D2B - Toxic materials



Chemical Name	NPRI
Dicyclopentadiene	X
Isoprene	X

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

NFPA	Health hazards 2	Flammability 3	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 2*	Flammability 3	Physical hazards 0	Personal protection -

* = Chronic Health Hazard

Revision Date 16-Sep-2016

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