Safety Data Sheet

CATAPOWER

catapowerinc.com

Version 1.2
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Section 1: Identification

1.1 Product identifier

Product name:	Benzylidene-bis(tricyclohexylphosphine)dichlororuthenium, ≥ 97%
Other names:	Grubbs catalyst, 1st generation
Product code:	20-02001
CAS number:	172222-30-9

1.2 Relevant uses

Recommended use:	Laboratory use for synthesis

1.3 Supplier details

Manufacturer:	Catapower, Inc. 2265 E. Foothill Blvd. Pasadena, CA 91107 info@catapowerinc.com
Phone:	(626) 657-0386

1.4 Emergency telephone number

Emergency phone:	(800) 424-9300 CHEMTREC is available at the number above 24 hours/day, 7 days/week.

Section 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Flammable solids (category 2): H228

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statements

H228	Flammable solid

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof ventilating equipment.
P280	Wear protective gloves, protective clothing, and eye protection.
P370 + P378	In case of fire, use water, dry sand, dry chemical, or carbon dioxide to extinguish.

2.3 Hazards not otherwise classified

None.

Section 3: Composition/information on ingredients

3.1 Substances

Synonyms	Benzylidene-bis(tricyclohexylphosphine)dichlororuthenium, 1st generation Grubbs catalyst, Bis(tricyclohexylphosphine)benzylidine ruthenium(IV) dichloride, Dichloro(benzylidene)bis(tricyclohexylphosphine)ruthenium(II)
Formula	$C_{43}H_{72}Cl_2P_2Ru$
Molecular weight	822.96 g/mol
CAS number:	172222-30-9

Section 4: First aid measures

4.1 Description of necessary first-aid instructions

General guidance:	Move away from the dangerous area. Consult a qualified medical professional and present this safety data sheet.
If inhaled:	Move the affected person to fresh air. Provide artificial respiration if not breathing. Consult a qualified medical professional.
In case of skin contact:	Wash the affected area with soap and water. Consult a qualified medical professional.
In case of eye contact:	Flush the affected eye with water for 15 minutes. Consult a qualified medical professional.
If swallowed:	Do not induce vomiting. Rinse the mouth with water. Consult a qualified medical professional.

4.2 Most important symptoms/effects

The most important known symptoms are described in Section 11.

4.3 Indication of immediate medical attention and special treatment needed

No data available.

Section 5: Firefighting measures

5.1 Suitable extinguishing media

Use water, dry sand, dry chemical, or carbon dioxide to extinguish.

5.2 Specific hazards arising from the chemical

Combustion may release carbon dioxide, carbon monoxide, phosphorous oxides, hydrogen chloride gas, and ruthenium oxides.

5.3 Recommendations for firefighters

Wear self-contained breathing apparatus for firefighting if needed.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment, and emergency procedures

Use personal protective equipment as recommended in Section 8. Avoid breathing aerosol. Ensure adequate ventilation. In the event of an emergency, evacuate to a safe location.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Solid material may be swept. Temporarily store in a suitable container. Dispose of the material in accordance with local regulations as described in Section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Use personal protective equipment as recommended in Section 8. Avoid breathing aerosol. Avoid contact with skin, eyes, and clothing. Avoid ingestion. Take precautions to prevent the formation and accumulation of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly sealed in a dry location. Material is air sensitive; recommended storage is under inert atmosphere. Storage class 4.1B (flammable solid materials).

Section 8: Exposure controls / personal protection

8.1 Control parameters

Components with workplace control parameters

No occupational exposure limit.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection

For full or incidental contact, nitrile gloves with a minimum layer thickness of 0.11 mm are recommended. Dispose of contaminated gloves in accordance with relevant local regulations.

Body protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

When a risk assessment indicates respiratory protection is required, use a full-face respirator with multi-purpose combination (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Purple, microcrystalline solid
Odor:	No data available
Odor threshold:	No data available
pH:	No data available

Melting/freezing point:	No data available
Initial boiling point and range:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	Flammable solid.
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	No data available
Solubility:	No data available
Partition coefficient, n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive Properties:	No data available

Section 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under the recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Flames and sparks

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products.
Fire-induced decomposition may release carbon dioxide, carbon monoxide, phosphorous oxides, hydrogen chloride gas, and ruthenium oxides. See Section 5 for additional firefighting information.

Section 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Section 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulation potential
No data available

12.4 Mobility in soil
No data available

12.6 Other adverse effects
No data available

Section 13: Disposal considerations

13.1 Waste disposal methods
Must not be disposed in household garbage or in sewer. Dispose of excess product in appropriate containers with a licensed disposal company in accordance with all relevant regulations.

13.2 Contaminated packaging
Contaminated packaging should be discarded in the same manner as excess product.

Section 14: Transport information

14.1 UN number
1325, Hazard Class 4.1

14.2 UN proper shipping name
Flammable solids, organic, n.o.s.

14.3 Transport hazard class(es)
4.1 (flammable solids)

14.4 Packing group number
II (medium danger)

Section 15: Regulatory information

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

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
Fire hazard. Acute health hazard.

Massachusetts Right To Know components
No components are subject to the Massachusetts Right to Know Act.

California Prop. 65 components
No components are covered under the California Proposition 65 list.

Section 16: Other information

16.1 Disclaimer
This information supplied in this document is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. Users should make their own investigation to determine the suitability of this information for their own purposes.

16.2 NFPA ratings

Health = 1
Fire = 1
Reactivity = 0
Special hazards = none applicable

16.2 HMIS ratings
Health = 1
Fire = 1
Reactivity = 0
Personal protection = class C (safety glasses, gloves, and apron)