



## Material Safety Data Sheet

(R)-RuCl[(p-cymene)(DM-BINAP)]Cl

CAS No. 944451-24-5

### Section 1 - Chemical Product and Company Identification

<b>Common Name:</b>	(R)-RuCl[(p-cymene)(DM-BINAP)]Cl	<b>Contact Information:</b>
<b>Synonyms:</b>	1'-binaphthyl[(p-cymene)ruthenium(II) chloride	Manus Akteva Biopharma LLP 303, 3rd Floor, Royale Manor, Law Garden, Ellisbridge, Ahmedabad 380006, Gujarat, India.
<b>IUPAC Name:</b>	Not Available	<b>For emergency, call:</b>
<b>Molecular Formula:</b>	C <sub>62</sub> H <sub>62</sub> Cl <sub>2</sub> P <sub>2</sub> Ru	<b>Tel:</b> + 91 79 26463395, 26463394
<b>Molecular Weight:</b>	1041.08	<b>Fax:</b> + 91 79 26463395
<b>CAS No.:</b>	944451-24-5	<b>Email:</b> hello@manusaktevabiopharma.com products@manuskattevabiopharma.in
<b>HS CODE:</b>	Not Available	

### Section 2: Composition/information on Ingredients

#### Composition

Principle Components	CAS #	Chemical Name	Transport Information
(R)-RuCl[(p-cymene)(DM-BINAP)]Cl	944451-24-5	1'-binaphthyl[(p-cymene)ruthenium(II) chloride	Not Available

### Section 3. Hazards identification, including emergency overview

**Risk phrases:** Toxic if swallowed-Harmful to aquatic organism.

**Adverse human health effects:** Changes in blood pressure. Exposure may produce an allergic reaction. May produce irregular heart beat and nervous symptoms. Headache. Dizziness.

**Potential Health Effects** Very hazardous in case of skin contact (irritant), of eye contact (irritant).

Hazardous in case of skin contact of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (corrosive). Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

### Section 4. First aid measures

**Environment:**

No information is available about the potential of this product to produce adverse environmental effects.

**Ingestion:** Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

#### NOTES TO HEALTH PROFESSIONALS:

**Medical Treatment:**

Treat according to locally accepted protocols. For additional guidance, refer to the current prescribing information or to the local poison control information Centre. Medical treatment in cases of overexposure should be treated as an overdose and the target organs being nerves, treat it under expert medical advice and supervision.

### Section 5. Firefighting measures

**Flammability of the Product:** No May be combustible at high temperature

**Flash Point:** Not Available

**Products of Combustion:** Not Available.

**Auto ignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Explosion Hazards in presence of various substances:** Risks of explosion of the product in presence

**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:**

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use firefighting measures which suit the environment and take into account other materials which may be involved. In general, water-based extinguishers should not be used for fires involving organic materials. Use carbon dioxide or dry powder.

## Section 6. Accidental release measures

### **Personal Precautions:**

Splash goggles, Full suit, Dust respirator, Boots, Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product

### **Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

### **Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## Section 7. Handling and storage

**Precautions:** Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk; evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Handling:** Handle in accordance with good industrial hygiene and safety procedures

**Storage:** Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

## Section 8. Exposure controls/personal protection

**Engineering Controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### **Personal Protective Equipment:**

**Eyes:** Wear safety glasses and chemical goggles if splashing is possible.

**Skin:** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Wear a NIOSH/MSHA or European Standard EN 149 approved full-face piece airline respirator in the positive pressure mode with emergency escape provisions.

**Exposure Limits:** Not available.

## Section 9. Physical and chemical properties protection

**Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl

**CAS No:** 944451-24-5

**Physical state and appearance:** Not Available.

**Odor:** Not Available.

**Molecular Weight:** 1041.08

**Color:** Not Available

**Vapor Density:** Not Available

**Molecular Formula:** C<sub>62</sub>H<sub>62</sub>Cl<sub>2</sub>P<sub>2</sub>Ru

**Dispersion Properties:** Not Available

**Solubility:** Not Available

**pH (1% solution/water):** Not available.

**Boiling Point:** Not Available

**Freezing/Melting Point:** Not Available

**Specific Gravity:** Not Available

**Auto ignition Temperature:** Not available.

**Flash Point:** Not Available

## Section 10. Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Stable at room temperature in closed containers under normal storage and handling conditions.

**Stability:** The product is stable.

**Conditions to Avoid:** Sources of ignition. Light, Heat.

**Incompatibilities with various substances:** Bases- oxidizing agents and reducing agents .

**Polymerization:**No

**Hazardous Decomposition Products:** CO<sub>2</sub>, CO.

**Hazardous reactions:** None under normal conditions.

**Hazardous polymerization:** Will not occur.

## Section 11. Toxicological information

**Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl

**CAS No:** 944451-24-5

**Routes of Entry:** Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): Not Available

**Chronic Effects on Humans:** Not listed by ACGIH, IARC, NIOSH, or OSHA.

**Other Toxic Effects on Humans:** Not Available

**Special Remarks on Toxicity to Animals:** Not Available

**Special Remarks on Chronic Effects on Humans:** passes through the placenta, excreted in maternal milk.

**Special Remarks on other Toxic Effects on Humans:** Not Available

**RTECS#:** **Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl, CAS NO 944451-24-5 unlisted.

**Carcinogenicity:** CAS NO 944451-24-5 Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Effects of Acute Exposure:** Data not available

**Effects of Chronic Exposure:** Data not available

**Irritancy of Product:** Data not available

**Skin Sensitization:** Data not available

**Respiratory Sensitization:** Data not available

**Carcinogenicity-IARC:** Data not available

**Carcinogenicity - ACGIH:** Data not available

**Reproductive Toxicity:** Data not available

**Teratogenicity:** Data not available

**Embryo toxicity:** Data not available

**Mutagenicity:** Data not available

**Name of Synergistic Products / Effects:** Data not available

## Section 12. Ecological information

**Eco toxicity:** Not Available.

**BOD5 and COD:** Not Available.

**Products of Biodegradation:** Not Available

**Toxicity of the Products of Biodegradation:** Not Available

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13. Disposal considerations

### Disposal Recommendations

Dispose of in a manner consistent with federal, state, and local regulations. Collect for recycling or recovery if possible. The disposal method for rejected products/returned goods must ensure that they cannot be re-sold or re-used.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14. Transport information

This section provides guidance on classification information for shipping and transporting of Hazardous chemical(s) by road, air, rail, or sea. The information may include:

**Transport hazard class(es):** Not Available

### US DOT

**Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl, CAS NO 944451-24-5

**UN Number:** Not Available

**Packing Group:** Not Available

**DOT Classification:** Not Available

**Hazard Class:** Not Available

**Environmental hazards:** Not Available

**UN proper shipping name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl

### IMDG:

**Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl, CAS NO 944451-24-5

**UN Number:** Not Available

**Packing Group:** Not Available

**DOT Classification:** Not Available

**Hazard Class:** Not Available

**Environmental hazards:** Not Available

**UN proper shipping name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl

### IATA:

**Product Name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl, CAS NO 944451-24-5

**UN Number:** Not Available

**Packing Group:** Not Available

**DOT Classification:** Not Available

**Hazard Class:** Not Available

**Environmental hazards:** Not Available

**UN proper shipping name:** (R)-RuCl[(p-cymene)(DM-BINAP)]Cl

## Section 15. Regulatory information

### European/International Regulations

European Labeling in Accordance with EC Directives

**Hazard Symbols:** Not Available

**UN Number:** Not Available

**Packing Group:** Not Available

**Risk Phrases:** R 22,36,37 Harmful if swallowed, Irritating to eyes, respiratory system

**Safety** Wear suitable protective clothing, **S 24/25** Avoid contact with skin and eyes.

**S 37** Wear suitable gloves, **S 45** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**S 28A** after contact with skin wash immediately with plenty of water

United Kingdom Occupational Exposure Limits ,United Kingdom Maximum Exposure Limits

CAS NO 944451-24-5 is listed on **EINECS Master Inventory list**

### Exposure Limits

US FEDERAL TSCA CAS NO 944451-24-5 is not noticed by us on TSCA list.

CAS NO 944451-24-5 is listed on EINECS Master Inventory list

## Section 16. Other information

The information above is believed to be accurate and represents the best information currently available to us. However, **MANUS AKTEVA BIOPHARMA LLP** make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall **MANUS AKTEVA BIOPHARMA LLP** be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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