

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

**Section 1. Identification of the Substance/Mixture and of the Company/Undertaking**

- 1.1 Product Code:** 17690  
**Product Name:** Non-GMP AR-13324  
**Synonyms:** (S)-4-(3-amino-1-(isoquinolin-6-ylamino)-1-oxopropan-2-yl)benzyl 2,4-dimethylbenzoate dimesylate salt;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
**Relevant identified uses:** For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**  
**Company Name:** Cayman Chemical Company  
 1180 E. Ellsworth Rd.  
 Ann Arbor, MI 48108  
**Web site address:** www.caymanchem.com  
**Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**  
**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
 CHEMTREC Outside USA and Canada: +1 (703)527-3887

**Section 2. Hazards Identification**

- 2.1 Classification of the Substance or Mixture:**  
**Toxic To Reproduction, Category 2**  
**Specific Target Organ Toxicity (repeated exposure), Category 2**

**2.2 Label Elements:**



**GHS Signal Word:** **Warning**

**GHS Hazard Phrases:**

H361: Suspected of damaging fertility or the unborn child.

H373: May cause damage to bone marrow through prolonged or repeated exposure.

**GHS Precaution Phrases:**

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe {dust/fume/gas/mist/vapors/spray}.

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

**GHS Response Phrases:**

P308+313: IF exposed or concerned: Get medical attention/advice.

P314: Get medical attention/advice if you feel unwell.

**GHS Storage and Disposal Phrases:**

Please refer to Section 7 for Storage and Section 13 for Disposal information.

**2.3 Adverse Human Health Effects and Symptoms:** Contains a potent pharmaceutically active ingredient; Substance not fully tested, handle with care.

Inhalation may result in blood pressure changes.

Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation, ingestion, or skin absorption.

May cause damage to bone marrow through prolonged or repeated exposure.

May cause eye, skin, or respiratory system irritation.

May cause severe flushing.

Suspected of damaging fertility or the unborn child.

Vasodilator.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

AR-13324 is a Rho kinase inhibitor that also possesses inhibitory activity at other kinases and exhibits some norepinephrine transporter inhibition in vitro. Common adverse effects noted in clinical trials with AR-13324-containing solutions included eye redness and blurred vision. No systemic effects were identified following topical application as eye drops. Based on the presumed mechanism of action and effects observed in toxicology studies in animals, the potential for AR-13324 to cause developmental toxicity cannot be excluded at this point.

### Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
1422144-42-0 NA	Non-GMP AR-13324	100.0 %	NA NA	Toxic Repro. 2: H361 STOT (RE) 2: H373

### Section 4. First Aid Measures

**4.1 Description of First Aid Measures:**

**In Case of Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

**In Case of Skin Contact:** Immediately wash skin with soap and plenty of water for at least 20 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**In Case of Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 20 minutes. Have eyes examined and tested by medical personnel.

**In Case of Ingestion:** Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

**4.2 Important Symptoms and Effects, Both Acute and Delayed:** Inhalation may result in blood pressure changes.

### Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.  
**Media:** Use water spray to cool fire-exposed containers.  
**Unsuitable Extinguishing** A solid water stream may be inefficient.  
**Media:**
- 5.2 Flammable Properties and Hazards:** No data available.  
**Hazards:** No data available.  
**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Autoignition Pt:** No data.
- 5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### Section 6. Accidental Release Measures

- 6.1 Protective Precautions,** Avoid raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and Emergency Procedures:** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed. Protect from light and moisture. Store at -20°C ± 5°C.

### Section 8. Exposure Controls/Personal Protection

- 8.1 Exposure Parameters:**
- 8.2 Exposure Controls:**
- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Wash thoroughly after handling. No data available.



### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.

AR-13324 - Toxicity Data: Intravenous Maximum Tolerated Dose (MTD) (rat): 45 mg/kg;  
Intravenous MTD (dog): 60 mg/kg;

AR-13324 - STOT-single exposure - Single IV doses of 45 mg/kg AR-13324 caused injection site reactions (irritation, swollen and darkened tails) in rats. Single IV doses of 60 mg/kg in dogs, led to decreased activity, eye squinting, abnormal stance/gait and dark feces, as well as irreversible anemia.

AR-13324 - STOT-repeated exposure/Repeat-dose toxicity - Rats received 1, 3, or 10 mg/kg/day AR-13324 IV for 7 days. Red skin, ruffled hair coat, tail abrasions and abnormal appearance at the injection site were noted at 10 mg/kg/day and sporadic instances of food crumbling was seen at 3 mg/kg/day. Although some reversible hematological effects were noted at 1 mg/kg/day, this dose was considered a NOAEL. Dogs receiving IV doses .12.5 mg/kg/day for 7 days became moribund and were euthanized (NOAEL = 1 mg/kg/day).

AR-13324 - In 28-day IV studies with rats and dogs, no adverse effects were noted at any dose tested (NOAEL = 0.7 mg/kg/day for both species).

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
1422144-42-0	Non-GMP AR-13324	n.a.	n.a.	n.a.	n.a.

### Section 12. Ecological Information

**12.1 Toxicity:** Avoid release into the environment.  
Runoff from fire control or dilution water may cause pollution.

**12.2 Persistence and Degradability:** No data available.

**12.3 Bioaccumulative Potential:** No data available.

**12.4 Mobility in Soil:** No data available.

**12.5 Results of PBT and vPvB assessment:** No data available.

**12.6 Other adverse effects:** No data available.

### Section 13. Disposal Considerations

**13.1 Waste Disposal Method:** Dispose in accordance with local, state, and federal regulations.

### Section 14. Transport Information

**14.1 LAND TRANSPORT (US DOT):**

**DOT Proper Shipping Name:** Not dangerous goods.

**DOT Hazard Class:**

**UN/NA Number:**

**14.1 LAND TRANSPORT (European ADR/RID):**

**ADR/RID Shipping Name:** Not dangerous goods.

**UN Number:**

**Hazard Class:**

**14.3 AIR TRANSPORT (ICAO/IATA):**

**ICAO/IATA Shipping Name:** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### Section 15. Regulatory Information

**EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists**

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
1422144-42-0	Non-GMP AR-13324	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
1422144-42-0	Non-GMP AR-13324	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No

**Regulatory Information Statement:** This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

### Section 16. Other Information

**Revision Date:** 07/07/2017

**Additional Information About This Product:** Recommended PDEs:

100 µg/day by parenteral routes of exposure, and 0.7 µg/day by ocular routes of administration. Additional assessments should be performed for other routes.

Recommended OEL:  
10 µg/m3 as an 8-hour time-weighted average

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