

**Product Name:** 2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester  
**Issued:** Dec-18-2012

## **SAFETY DATA SHEET**

### **Section 1. Identification of the substance/mixture and of the company/undertaking**

#### **1.1 Product Identifier**

**Product Name:** 2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester  
**Chemical Name:** N-{[Methyl{[2-(1-methylethyl)-4-thiazolyl]methyl}amino]carbonyl}-L-Valine, 2,5-dioxo-1-pyrrolidinyl Ester  
**Synonyms:** 2,4-Thiazole Ester; 2,4-Wing Ester; 2,4-Wing Acid; Ritonovir Intermediate; 2,4-Thiazole Wing Valine Ester; 2,4-Thiazole Wing Valine Hydroxysuccinimide Ester; 2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester  
**Drug Code Number:** 85859

#### **1.2 Relevant identified uses of the substance or mixture and uses advised against**

**Recommended use:** Process Intermediate

#### **1.3 Details of the supplier of the safety data sheet**

**Supplier:** AbbVie Inc.  
1 North Waukegan Road  
North Chicago, IL 60064  
USA  
1-800-255-5162  
+1-847-937-7433  
**Customer Service Telephone:** 1-800-255-5162 (US and Canada only)  
+1-847-937-7433  
**E-mail Address:** AbbVie.SDS@abbvie.com

#### **1.4 Emergency telephone number**

**Emergency Telephone:** CHEMTREC: 1(800) 424-9300 (in USA and Canada)  
or +1-703-527-3887 (international)

### **Section 2. Hazards identification**

#### **2.1 Classification of the substance or mixture**

**Regulation (EC) No 1272/2008**

**Serious eye damage/eye irritation** Category 1  
**Skin sensitization** Category 1  
**Specific target organ systemic toxicity (repeated exposure)** Category 2  
**None**

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

**Indication of danger:** Xn - Harmful  
Xi - Irritant

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## Section 2. Hazards identification

**Risk Phrases:** R41 - Risk of serious damage to eyes  
R43 - May cause sensitization by skin contact  
R48/22 - Harmful: danger of serious damage to health by prolonged exposure if swallowed

### 2.2 Label elements



**Signal Word:** Danger

**Hazard Statements:** H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H373 - May cause damage to organs through prolonged or repeated exposure

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention  
P314 - Get medical advice/attention if you feel unwell

### 2.3 Other hazards

Not determined

## Section 3. Composition/information on ingredients

Chemical Name	Percent	EINECS/ELINCS Number	EEC Classification	EU - GHS Substance Classification	REACH No.
2,4-Thiazole Wing Ester 224631-15-6	100	NA	Xi, 41; Xn, R48/22); R43;	Eye Dam. 1 (H318) Skin Sens. 1 (H317)	01-0000017111-86- 0000

Not Hazardous\* - Based on available data, not classified as hazardous according to the criteria of the Globally Harmonized System.

**For the full text of the R-phrases mentioned in this Section, see Section 16**

**For the full text of the H-Statements mentioned in this Section, see Section 16**

## Section 4. First aid measures

### 4.1 Description of first aid measures

**Product Name:** 2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester  
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**Eye Contact:** Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Skin Contact:** Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Inhalation:** Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Ingestion:** Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Protection of First-aiders:** Use personal protective equipment

#### **4.2 Most important symptoms and effects, both acute and delayed**

**Signs and Symptoms:** None known from occupational exposure.

**Medical Conditions Aggravated by Exposure:** None known from occupational exposure.

#### **4.3 Indication of any immediate medical attention and special treatment needed**

**Notes To Physician:** Treat symptomatically

### **Section 5. Firefighting measures**

#### **5.1 Extinguishing Media**

**Suitable Extinguishing Media:** Use extinguishing agent suitable for type of surrounding fire

**Unsuitable Extinguishing Media:** Not determined

#### **5.2 Special hazards arising from the substance or mixture**

**Special Exposure Hazards:** Not determined

#### **5.3 Advice for firefighters**

**Protective Equipment and Precautions for Firefighters:** As in any fire, wear self-contained breathing apparatus and full protective gear

### **Section 6. Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** For personal protection see section 8

#### **6.2. Environmental precautions**

**Environmental Precautions:** Contain material and prevent release to waterways or soil.

#### **6.3. Methods and material for containment and cleaning up**

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**Methods for Cleaning Up:** Recover product and place in an appropriate container for disposal.

#### **6.4. Reference to other sections**

Refer to Sections 8, 12, and 13 for further information.

### **Section 7. Handling and storage**

#### **7.1. Precautions for safe handling**

Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice.

#### **7.2. Conditions for safe storage, including any incompatibilities**

Store according to label instructions

#### **7.3. Specific end use(s)**

**Recommended use:** Process Intermediate

### **Section 8. Exposure controls/personal protection**

#### **8.1. Control parameters**

##### **Exposure limits:**

<b>Chemical Name</b>	<b>Employee Exposure Limit</b>	<b>Skin Notation</b>
2,4-Thiazole Wing Ester 224631-15-6	Not Applicable	None

#### **8.2. Exposure controls**

**Engineering Controls:** Local exhaust ventilation as necessary to maintain exposures to within applicable limits.

**Respiratory Protection:** An approved respirator (i.e. NIOSH, EN, etc.) should be worn when exposures are expected to exceed the applicable limits.

**Eyes:** Wear eye protection appropriate to handling activities.

**Gloves:** Impervious gloves.

**Other PPE Data:** Wear appropriate body coverings if contact may occur.

**Environmental Exposure Controls:** Not determined

### **Section 9. Physical and chemical properties**

#### **9.1. Information on basic physical and chemical properties**

**Appearance:** White to tan Crystalline Powder  
**Odor:** Not determined.  
**Odor Threshold:** Not determined

<b>Product Name:</b>	<b>2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester</b>
<b>Issued:</b>	<b>Dec-18-2012</b>
<b>pH:</b>	Not determined.
<b>Boiling Pt. @ 760 mm Hg (°C):</b>	Decomposes without boiling.
<b>Melting/Freezing Point (°C):</b>	112-118
<b>Flash Point (°C):</b>	Not determined.
<b>Evaporation Rate at 20°C:</b>	Not determined.
<b>Flammability (Solid):</b>	Not determined.
<b>Lower Explosive Limit:</b>	Not determined.
<b>Upper Explosive Limit:</b>	Not determined.
<b>Vapor Pressure (mm Hg):</b>	0.000000346
<b>Vapor Density (Air = 1):</b>	Not determined.
<b>Specific Gravity:</b>	1.1982
<b>Solubility(ies):</b>	Soluble in: acetone, methanol.
<b>Partition coefficient: n-octanol/water</b>	Not determined.
<b>Autoignition Temp. (°C):</b>	> 112
<b>Decomposition temperature (°C):</b>	Not determined.
<b>Viscosity (centipoise):</b>	Not determined.
<b>Explosion Severity:</b>	Not determined.
<b>Oxidizer Properties:</b>	Not determined.

## **9.2. Other information**

Not determined

# **Section 10. Stability and reactivity**

## **10.1. Reactivity**

Not determined

## **10.2. Chemical stability**

Decomposes slowly on exposure to water Stable under normal conditions

## **10.3. Possibility of hazardous reactions**

**Hazardous reactions:** Not determined.

**Self-Heating Tendency:** Decomposes exothermically above .? deg C in ARC testing.

## **10.4. Conditions to avoid**

Not determined.

## **10.5 Incompatible materials**

Strong oxidizing agents, Acids, Bases

## **10.6 Hazardous decomposition products**

Not determined.

# **Section 11. Toxicological information**

## **11.1. Information on toxicological effects**

**Product Name:** 2,4-Thiazole Wing Valine Hydroxysuccinimide Active Ester  
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**Routes of Exposure:**

**Oral:** Not determined.  
**Dermal:** Not determined.  
**Inhalation:** Not determined.

**Acute Toxicity - Oral:** Data for component (s) given below.

Chemical Name	Acute Test	Value	Units	Species
2,4-Thiazole Wing Ester 224631-15-6	LD50 >	2000	mg/kg	Rats

**Acute Toxicity - Dermal:** Data for component (s) given below.

Chemical Name	Acute Test	Value	Units	Species
2,4-Thiazole Wing Ester 224631-15-6	LD50 >	2000	mg/kg	Rats

**Acute Toxicity - Inhalation:** Not determined.

**Corrosivity:** Not determined.

**Dermal Irritation:** Did not produce skin irritation in rabbits.

**Eye Irritation:** Produced severe eye irritation in rabbits. Produced corneal opacity, iritis and conjunctival redness, swelling and discharge. No recovery after 7 days.

**Sensitization:** Produced less than 15% sensitization response in guinea pigs.

**Toxicokinetics/Metabolism:** Not determined.

**Target Organ Effects:** Data for component (s) given below.

Chemical Name	Target Organs:	Species	Dosage	Units	Route	Duration
2,4-Thiazole Wing Ester 224631-15-6	Gastrointestinal Tract Respiratory System	Rats	150	mg/kg	Oral Gavage	28 days

**Reproductive Effects:** Not determined.

**Carcinogenicity:** Not determined.

**Mutagenicity:** Not determined.

**Aspiration hazard:** Not determined

**Notes:**

1. ALD: Approximate lethal dosage
2. LC50: Concentration in air that produces 50% mortality
3. LD50: Oral or dermal dosage that produces 50% mortality

## Section 12. Ecological information

### 12.1. Toxicity

Data for component (s) given below.

Chemical Name	Percent	LC 50 (mg/l)	Species	Duration
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2,4-Thiazole Wing Ester 224631-15-6	100	>100	Rainbow Trout	96 Hours
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Chemical Name	Percent	EC 50 (mg/l)	Species	Duration
2,4-Thiazole Wing Ester 224631-15-6	100	>100	Daphnia magna	48 Hours

Chemical Name	Percent	EB 50/ErC 50 (mg/l)	Species	Duration
2,4-Thiazole Wing Ester 224631-15-6	100	>100	Unicellular Green Algae	72 Hours

## **12.2. Persistence and degradability**

Data for component (s) given below.

Chemical Name	Percent	% Degradation	Duration
2,4-Thiazole Wing Ester 224631-15-6	100	51.2	21 days

**Persistence:** Data for components given below.

Chemical Name	Percent	% Hydrolysis	pH	Time at 50 C
2,4-Thiazole Wing Ester 224631-15-6	100	50	4 7 9	< 1 hour

## **12.3. Bioaccumulative potential**

Data for components given below.

Chemical Name	Percent	Log Po/w
2,4-Thiazole Wing Ester 224631-15-6	100	3.5

## **12.4. Mobility in soil**

Not determined.

## **12.5. Results of PBT or vPvB assessment**

Chemical safety report is not required for this substance/product.

## **12.6. Other adverse effects**

Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system.

**Notes:**

1. EC50: Concentration in water that produces 50% mortality in Daphnia sp.
2. LC50: Concentration in water that produces 50% mortality in fish.
3. EbC50/ErC50: Concentration in water that produces 50% inhibition of growth and in algae.

## **Section 13. Disposal considerations**

### **13.1 Waste treatment methods**

**Waste Disposal Methods:** Disposal should be made in accordance with country, federal, state and local regulations.

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## Section 14. Transport information

### ADR, DOT, ICAO/IATA, IMDG/IMO

**Status:** Not regulated

**14.1. UN Number:** Not applicable

**14.2. Proper shipping name:** Not applicable

**14.3. Hazard class:** Not applicable

**14.4. Packing group:** Not applicable

**14.5. Environmental hazard:** Not applicable

**14.6. Special Provisions:** Not applicable

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable

## Section 15. Regulatory Information

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

#### International Inventories

Chemical Name	EINECS/ ELINCS	TSCA	DSL	NDSL	PICCS
2,4-Thiazole Wing Ester 224631-15-6	-	-	-	Not listed.	-

Chemical Name	ENCS	ISHL	IECSC	AICS	KECL	New Zealand
2,4-Thiazole Wing Ester 224631-15-6	(5)-6650	-	-	-	-	

#### Legend

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

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

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**ISHL** - Japan Industrial Safety and Health Law

**IECSC** - China Inventory of Existing Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

#### Carcinogenicity Rating:

Chemical Name	Percent	NTP:	IARC:	ACGIH:
2,4-Thiazole Wing Ester	100	Not Listed	Not Listed	Not Listed

#### SARA 313 Information

Chemical Name	Percent	SARA 313 Chemical:	CERCLA RQ/SARA EHS RQ (lbs):	SARA EHS TPQ (lbs):
2,4-Thiazole Wing Ester	100	No	Not Applicable	Not applicable

**Immediate Health:** Yes

**Delayed Health:** No



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**Fire:** No  
**Sudden Pressure:** No  
**Reactivity:** No

**RCRA Status:** Not determined.

**Proposition 65 Status:** Does not contain chemicals known to the state of California to cause cancer or reproductive harm.

**WHMIS Hazard Class:** Not determined.

**NFPA Rating:**  
Health: 3  
Fire: 1  
Reactivity: 0

**Notes:**

1. SARA = Superfund Amendments and the Reauthorization Act.
2. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act.
3. FIFRA = Federal Insecticide, Fungicide and Rodenticide Act.
4. TSCA = Toxic Substances Control Act.
5. EC = European Community.
6. WHMIS = Canadian Workplace Hazardous Materials Information System.
7. UN GHS = United Nations Globally Harmonized System for Hazard Identification.

**15.2. Chemical safety assessment**

Chemical safety assessment has not been conducted on the substance/product.

<b>Section 16. Other information</b>
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**Risk Phrases:** R41 - Risk of serious damage to eyes, R43 - May cause sensitization by skin contact, R48/22 - Harmful: danger of serious damage to health by prolonged exposure if swallowed

**Document Authored By:** Global Occupational Toxicology (D-03QC)

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**Supersedes the SDS dated:** Sep-02-2009

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