



Material Safety Data Sheet

## INVIRASE(R) Capsule Mix (200 mg)

### 1. Product and Company Identification

Product name	INVIRASE(R) Capsule Mix (200 mg)	
Product code	03 4301 3	
Company information	Enquiries: Hoffmann-La Roche Inc. 340 Kingsland Street USA-Nutley, N.J. 07110-1199 United States of America	Local representation:
	Phone	001-973/235 50 00
	US Emergency phone: (800)-827-6243 US Chemtrec phone: (800)-424-9300	
Roche Nutley Inventory Code	27070155	

### 2. Composition/Information on ingredients

Ingredients (CAS no.)	Concentration
Saquinavir mesylate (149845-06-7)	50-60 %
Microcrystalline cellulose (9004-34-6)	10-15 %
Talc (14807-96-6)	5-10 %
Sodium starch glycolate (9063-38-1)	< 5 %

### 3. Hazards identification

#### Emergency Overview

Form	powder or powder with lumps
Color	white to off-white
Hazard Overview	- Possible dust explosion hazard based on information on related materials

## INVIRASE(R) Capsule Mix (200 mg)

- Potential Health Effects
- Exposure: Inhalation, Ingestion, Skin contact, Eye contact
  - Target Organs: eye, mucous membranes, gastrointestinal system, Central nervous system
  - Acute Effects: May cause eye irritation., May cause mucous membrane irritation (inflammation)., May cause central nervous system effects., Signs and symptoms may include headache, dizziness, drowsiness, fatigue and lack of muscular coordination., May cause gastrointestinal effects., Signs and symptoms may include nausea, vomiting, diarrhea, constipation, cramps, and loss of appetite.
  - Chronic Effects: No adverse effects known
  - Carcinogenicity: formulation not listed by NTP, IARC or OSHA
  - Carcinogenicity: IARC Gr3 not classifiable <sup>\*1</sup>

\*1 referring to: Talc

### 4. First-aid measures

- Eye contact
- Immediately flush eyes with plenty of water. If irritation occurs or persists, get medical attention.
- Skin contact
- Remove contaminated clothing and shoes. Flush skin with plenty of water. If irritation occurs or persists, get medical attention. Wash clothing and shoes before reuse.
- Inhalation
- Remove to fresh air. If discomfort occurs or persists, get medical attention.
- Ingestion
- If large quantities of this material are swallowed, get medical attention immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

### 5. Fire-fighting measures

- Suitable extinguishing media
- water spray jet, dry powder, foam, carbon dioxide
- Flash point (liquid)
- not applicable
- Specific hazards
- Toxic emissions may be given off in a fire
- Protection of fire-fighters
- use self-contained breathing apparatus
- Special method of fire-fighting
- cool endangered containers with water spray

## INVIRASE(R) Capsule Mix (200 mg)

### 6. Accidental release measures

- |                          |  |
|--------------------------|--|
| Personal precautions     | - ensure adequate ventilation  |
| Environmental protection | - do not allow to enter drains or waterways  |
| Methods for cleaning up  | - Scoop or shovel spilled material into a suitable labeled open head drum<br>- Secure the drum cover and move the container to a safe holding area<br>- Wash spill area thoroughly with soapy water<br>- Collect wash with a noncombustible absorbent material and transfer to labeled container for treatment and disposal.<br>- Check area for residual material and repeat clean up if detected |

### 7. Handling and storage

#### Handling

- |                    |   |
|--------------------|---|
| Technical measures | - local exhaust ventilation necessary<br>- avoid dust formation; consider dust explosion hazard |
|--------------------|---|

#### Storage

- |                    |  |
|--------------------|--|
| Storage conditions | - 15 - 25 °C<br>- keep containers tightly closed<br>- store in a dry place |
|--------------------|--|

### 8. Exposure controls/Personal protection

- |                             |   |
|-----------------------------|---|
| <b>Engineering Measures</b> | - see 7.  |
| Threshold value (USA) air   | - ACGIH-TLV: 2 mg/m <sup>3</sup> (not classifiable as a human carcinogen, respirable fraction) *1<br>- ACGIH-TLV: 10 mg/m <sup>3</sup> *2<br>- ACGIH-TLV: 10 mg/m <sup>3</sup> *3 |
| Threshold value (Roche) air | - IOEL: 2 mg/m <sup>3</sup> *4  |

#### Personal protective equipment

- |                        |  |
|------------------------|--|
| Respiratory protection | - Respiratory protection is recommended as a precaution to minimize exposure. Effective engineering controls are considered to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls.<br>- Respiratory protection is recommended for dusty operations.<br>- Use of a negative pressure air purifying, half face respirator with a toxic/dust/mist/fume high efficiency filter in the laboratory or a supplied-air full facepiece respirator or supplied-air hood for production operations is recommended. |
| Hand protection        | - protective gloves  |
| Eye protection         | - safety glasses   |

## INVIRASE(R) Capsule Mix (200 mg)

Body protection	- protective clothing		
*1 referring to:	Talc		
*2 referring to:	Sodium starch glycolate		
*3 referring to:	Microcrystalline cellulose		
*4 referring to:	Saquinavir mesylate		
<b>9. Physical and chemical properties</b>			
Color	white to off-white		
Form	powder or powder with lumps		
<b>10. Stability and reactivity</b>			
Stability	- stable under normal conditions		
<b>11. Toxicological information</b>			
Acute toxicity	- LD <sub>50</sub> > 5'000 mg/kg (oral, mouse)	*4	
	- LD <sub>50</sub> > 2'000 mg/kg (oral, marmoset)	*4	
	- LD <sub>50</sub> > 5'000 mg/kg (oral, rat)	*4	
Local effects	- skin: non-irritant (man)	*4	
	- eye: irritant (man)	*4	
Sensitization	- not sensitizing (man)	*4	
Chronic toxicity	- low toxicity (oral, several species)	*4	
Mutagenicity	- not mutagenic (various in vivo and in vitro test systems)	*4	
Reproduction toxicity	- not teratogenic, not embryotoxic (several species)	*4	
*4 referring to:	Saquinavir mesylate		
<b>12. Ecological information</b>			
Ready biodegradability	- not readily biodegradable 4 %, 28 days (CO <sub>2</sub> Evolution Test (Modified Sturm Test), OECD No. 301 B)	*4	
Ecotoxicity	- moderately toxic for fish (rainbow trout) NOEC 38 mg/l LC <sub>50</sub> > 38 mg/l	*4	
	- barely toxic for planktonic crustaceans (Daphnia magna) NOEC 36 mg/l EC <sub>50</sub> > 100 mg/l	*4	
	- moderately toxic for algae (Selenastrum capricornutum) NOEbC 20 mg/l	*4	
	- moderately toxic for microorganisms (activated sludge) EC <sub>50</sub> > 59 mg/l (Activated Sludge Respir. Inhib. Test, OECD No. 209)	*4	

## INVIRASE(R) Capsule Mix (200 mg)

Mobility	<ul style="list-style-type: none"><li>- barely toxic for microorganisms (bacteria, fungi, cyanobacteria in pure culture) NOEBC 312 mg/l (FDA Technical Assistance Document No. 4.02) *4</li><li>- barely toxic for earthworms (earthworms) LD<sub>50</sub> &gt; 1000 mg/l (method not known) *4</li><li>- low mobility (Soil-Water, 23 °C) K<sub>OC</sub> = 10692 (silty loam) K<sub>OC</sub> = 22919 (clay loam) K<sub>OC</sub> = 13711 (loam) (FDA Technical Assistance Document No. 3.08) *4</li></ul>
*4 referring to:	Saquinavir mesylate
<b>13. Disposal considerations</b>	
Waste from residues	<ul style="list-style-type: none"><li>- observe local/national regulations regarding waste disposal</li><li>- incinerate in qualified installation with flue gas scrubbing</li></ul>
Contaminated packaging	<ul style="list-style-type: none"><li>- Empty containers must be triple rinsed prior to disposal, recycling or reuse.</li></ul>
RCRA waste	<ul style="list-style-type: none"><li>- not regulated under RCRA</li></ul>
<b>14. Transport information</b>	
Note	<ul style="list-style-type: none"><li>- not classified by transport regulations, proper shipping name non-regulated</li></ul>
<b>15. Regulatory information</b>	
TSCA Status	<ul style="list-style-type: none"><li>- FDA Exemption - not on inventory</li></ul>
Reporting Requirements	<ul style="list-style-type: none"><li>- The United States Environmental Protection Agency (USEPA) has not established a Reportable Quantity (RQ) for releases of this material.</li><li>- In New Jersey, report all releases which are likely to endanger the public health, harm the environment or cause a complaint to the NJDEPE Hotline (1-609-292-5560) and to local officials.</li><li>- State and local regulations vary and may impose additional reporting requirements.</li></ul>
<b>16. Other information</b>	
Use	<ul style="list-style-type: none"><li>- HIV-protease inhibitor</li></ul>
Edition documentation	<ul style="list-style-type: none"><li>- first edition</li></ul>
<p>The information in this safety data sheet is based on current scientific knowledge. It should not be taken as expressing or implying any warranty concerning product characteristics.</p>	

**1. Product and Company Identification**

Product name	INVIRASE(R) F. C. Tablets (500 mg)	
Product code	100 6494 3	
Use	- HIV-protease inhibitor	
Company information	Enquiries: Hoffmann-La Roche Inc. 340 Kingsland Street USA-Nutley, N.J. 07110-1199 United States of America	Local representation:
	Phone 001-973/235 50 00 E-Mail info.sds@roche.com	
	US Emergency phone: (800)-827-6243 US Chemtrec phone: (800)-424-9300	

**2. Hazards identification****Emergency Overview**

Form	solid
Color	pale orange
Potential Health Effects	<ul style="list-style-type: none"><li>- Exposure: Ingestion</li><li>- Target Organs: gastrointestinal system, Central nervous system</li> <li>- Acute Effects: May cause central nervous system effects., Signs and symptoms may include headache, dizziness, drowsiness, fatigue and lack of muscular coordination., May cause gastrointestinal effects., Signs and symptoms may include nausea, vomiting, diarrhea, constipation, cramps, and loss of appetite.</li> <li>- Chronic Effects: No adverse effects known</li> <li>- Carcinogenicity: formulation not listed by NTP, IARC or OSHA</li></ul>

**3. Composition/Information on ingredients**

Characterization	final product
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## INVIRASE(R) F. C. Tablets (500 mg)

Ingredients	Concentration
Saquinavir mesylate CAS: 149845-06-7	~ 71 %
Microcrystalline cellulose CAS: 9004-34-6	~ 12 %
Croscarmellose sodium CAS: 74811-65-7	~ 6 %
<b>4. First-aid measures</b>	
Eye contact	- in case of contact with eyes rinse thoroughly with plenty of water and get medical advice
Skin contact	- remove immediately contaminated clothes, wash affected skin with plenty of water
Inhalation	- in case of inhalation remove to fresh air and seek medical aid
Ingestion	- consult physician
<b>5. Fire-fighting measures</b>	
Suitable extinguishing media	- water spray jet, dry powder, foam, carbon dioxide
Flash point (liquid)	not applicable
Specific hazards	- Toxic emissions may be given off in a fire
Protection of fire-fighters	- use self-contained breathing apparatus
Special method of fire-fighting	- cool endangered containers with water spray
<b>6. Accidental release measures</b>	
Personal precautions	- ensure adequate ventilation
Environmental protection	- avoid release to the environment
Methods for cleaning up	- Scoop or shovel spilled material into a suitable labeled open head drum - Secure the drum cover and move the container to a safe holding area - Clean spill area thoroughly - Collect wash with a noncombustible absorbent material and transfer to labeled container for treatment and disposal. - Check area for residual material and repeat clean up if detected

## INVIRASE(R) F. C. Tablets (500 mg)

### 7. Handling and storage

#### Handling

- Technical measures
- local exhaust ventilation necessary
  - avoid dust formation; consider dust explosion hazard

#### Storage

- Storage conditions
- keep containers tightly closed
  - room temperature
  - store in a dry place

### 8. Exposure controls/Personal protection

- Engineering Measures**
- see 7.
- Threshold value (USA) air
- ACGIH-TLV: 10 mg/m<sup>3</sup> \*1
  - OSHA-PEL: 5 mg/m<sup>3</sup> (respirable dust fraction) \*1
  - OSHA-PEL: 15 mg/m<sup>3</sup> (total dust) \*1
  - NIOSH-REL: 5 mg/m<sup>3</sup> (respirable dust fraction) \*1
  - NIOSH-REL: 10 mg/m<sup>3</sup> (total dust) \*1
  - ACGIH-TLV: 10 mg/m<sup>3</sup> (inhalable particulate) \*2
  - ACGIH-TLV: 3 mg/m<sup>3</sup> (respirable particulate) \*2
  - OSHA-PEL: 5 mg/m<sup>3</sup> (respirable dust) \*2
  - OSHA-PEL: 15 mg/m<sup>3</sup> (total dust) \*2
- Threshold value (Roche) air
- IOEL (Internal Occupational Exposure Limit): 2 mg/m<sup>3</sup> \*3

#### Personal protective equipment

- Respiratory protection
- Respiratory protection is recommended as a precaution to minimize exposure. Effective engineering controls are considered to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls.
  - respiratory protection not necessary
- Hand protection
- protective gloves
- Eye protection
- safety glasses
- Body protection
- protective clothing

- \*1 referring to: Microcrystalline cellulose  
\*2 referring to: Croscarmellose sodium  
\*3 referring to: Saquinavir mesylate

### 9. Physical and chemical properties

- Color
- pale orange
- Form
- solid

## INVIRASE(R) F. C. Tablets (500 mg)

### 10. Stability and reactivity

Stability	- stable under normal conditions
Conditions to avoid	- None known
Materials to avoid	- None known

### 11. Toxicological information

Acute toxicity	- LD <sub>50</sub> > 5'000 mg/kg (oral, mouse) *3
	- LD <sub>50</sub> > 2'000 mg/kg (oral, marmoset) *3
	- LD <sub>50</sub> > 5'000 mg/kg (oral, rat) *3
Local effects	- skin: non-irritant (rabbit) *3
	- skin: non-irritant (man) *3
	- eye: irritant (man) *3
	- mucous membranes: irritant (man) *3
Sensitization	- not sensitizing (man) *3
Chronic toxicity	- low toxicity (oral, several species) *3
Mutagenicity	- not mutagenic (various in vivo and in vitro test systems) *3
Reproduction toxicity	- not teratogenic, not embryotoxic (several species) *3
Note	- inhibits HIV replication by inhibiting the viral proteinase *3
	- dosage: 600 mg three times daily p.o. *3
	- after ingestion of single doses of up to 8 g, only mild gastrointestinal effects were observed *3
	- bioavailability 4% (poor absorption, pronounced first pass effect) *3
	- metabolisation and excretion via liver/faeces *3
	- plasma concentrations after a single dose of 600 mg: 3-35 ng/ml *3
	- half life 7 hours *3
	- side effects at full therapeutic dose: only mild gastrointestinal disturbances *3
*3 referring to:	Saquinavir mesylate

### 12. Ecological information

Ready biodegradability	- not readily biodegradable 4 %, 28 days (CO <sub>2</sub> Evolution Test, Modified Sturm Test, OECD No. 301B) *3
Ecotoxicity	- moderately toxic for microorganisms (activated sludge) EC <sub>50</sub> > 59 mg/l (Activated Sludge Respir. Inhib. Test, OECD No. 209) *3
	- barely toxic for microorganisms NOEC 312 mg/l *3
	- barely toxic for microorganisms (bacteria, fungi, cyanobacteria in pure culture) NOEbC 312 mg/l (FDA Technical Assistance Document No. 4.02) *3

## INVIRASE(R) F. C. Tablets (500 mg)

	<ul style="list-style-type: none"> <li>- barely toxic for earthworms (earthworms) LD<sub>50</sub> &gt; 1000 mg/l (method not known) *3</li> <li>- moderately toxic for fish (rainbow trout) NOEC (96 h) 38 mg/l LC<sub>50</sub> (96 h) &gt; 38 mg/l *3</li> <li>- barely toxic for planktonic crustaceans (Daphnia magna) NOEC (48 h) 36 mg/l EC<sub>50</sub> (48 h) &gt; 100 mg/l *3</li> <li>- moderately toxic for algae (Selenastrum capricornutum) NOEbC (12 days) 20 mg/l *3</li> </ul>
Mobility	<ul style="list-style-type: none"> <li>- low mobility (Soil-Water, 23 °C) K<sub>OC</sub> = 10692 (silty loam) K<sub>OC</sub> = 22919 (clay loam) K<sub>OC</sub> = 13711 (loam) (FDA Technical Assistance Document No. 3.08) *3</li> </ul>
Air pollution	<ul style="list-style-type: none"> <li>- observe local/national regulations *3</li> </ul>
*3 referring to:	Saquinavir mesylate
<b>13. Disposal considerations</b>	
Waste from residues	<ul style="list-style-type: none"> <li>- incinerate in qualified installation with flue gas scrubbing</li> <li>- observe local/national regulations regarding waste disposal</li> <li>- DO NOT FLUSH unused medications or POUR them down a sink or drain. If available in your area, use takeback programs run by household hazardous waste collection programs or community pharmacies to dispose of unused and expired medicines. If you don't have access to a takeback program, dispose of these medicines in the household trash by removing them from their original containers and mixing them with an undesirable substance, such as used coffee grounds or kitty litter.</li> </ul>
Contaminated packaging	<ul style="list-style-type: none"> <li>- Empty containers must be triple rinsed prior to disposal, recycling or reuse.</li> </ul>
RCRA waste	<ul style="list-style-type: none"> <li>- not regulated under RCRA</li> </ul>
<b>14. Transport information</b>	
Note	<ul style="list-style-type: none"> <li>- not classified by transport regulations, proper shipping name non-regulated</li> </ul>

## INVIRASE(R) F. C. Tablets (500 mg)

### 15. Regulatory information

- |                        |  |
|------------------------|--|
| TSCA Status            | - FDA Exemption - not on inventory   |
| Reporting Requirements | <ul style="list-style-type: none"><li>- The United States Environmental Protection Agency (USEPA) has not established a Reportable Quantity (RQ) for releases of this material.</li><li>- In New Jersey, report all releases which are likely to endanger the public health, harm the environment or cause a complaint to the NJDEPE Hotline (1-609-292-5560) and to local officials.</li><li>- State and local regulations vary and may impose additional reporting requirements.</li></ul> |

### 16. Other information

- |                       |  |
|-----------------------|--|
| Edition documentation | - changes from previous version in sections 13 |
|-----------------------|--|

The information in this safety data sheet is based on current scientific knowledge. It should not be taken as expressing or implying any warranty concerning product characteristics.