



Material Safety Data Sheet

BONIVA(R) Injection (3 mg/3 ml pre-filled syringes)

1. Product and Company Identification

Product name	BONIVA(R) Injection (3 mg/3 ml pre-filled syringes)	
Product code	CSE-2029	
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	
Characterization	Final Product	

2. Composition/Information on ingredients

Ingredients	Concentration
Ibandronate CAS: 138926-19-9	~ 0.1 %

3. Hazards identification

Emergency Overview

Form	liquid
Color	colorless, clear
Hazard Overview	- May cause musculoskeletal effects.
Potential Health Effects	- Exposure: Inhalation, Ingestion, Skin contact, Eye contact, Injection - Target Organs: Skeletal system - Acute Effects: This material has not been tested as a whole; therefore, the information described below is based on one or more of its ingredients., May cause headache., May cause musculoskeletal effects., May cause "flu-like" symptoms such as fever, fatigue, chills, headache, nausea and muscular pain. - Chronic Effects: No adverse effects known - Carcinogenicity: formulation not listed by NTP, IARC or OSHA

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Additional Health Information	- Conditions Aggravated: Hypersensitivity to this material and other materials in its chemical class. Uncorrected hypocalcemia. Severe renal impairment.
4. First-aid measures	
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
5. Fire-fighting measures	
Suitable extinguishing media	- water spray jet, dry powder, foam, carbon dioxide
Flash point (liquid)	Flash point not established
Protection of fire-fighters	- use self-contained breathing apparatus
6. Accidental release measures	
Personal precautions	- ensure adequate ventilation
Methods for cleaning up	- Absorb small spills with noncombustible absorbent material - Put saturated absorbent material into a suitable labeled open head drum. - Mop or flush the area with water - 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
7. Handling and storage	
Handling	
Technical measures	- Use with adequate ventilation
Note	- Store pre-filled syringes at 25 C (77 F); excursions permitted to 15 to 30 C (59 to 86 F).
Storage	
Storage conditions	- room temperature - dry and ventilated place - do not freeze

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8. Exposure controls/Personal protection

Engineering Measures	- see 7.	
Threshold value (Roche) air	- IOEL (Internal Occupational Exposure Limit): 0.002 mg/m ³	*1
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 during normal operations	
Hand protection	- protective gloves	
Eye protection	- tightly fitting safety glasses	
Body protection	- protective clothing	
General protective and hygiene measures	- instruction of employees mandatory - shower after work recommended	
*1 referring to:	Ibandronate	

9. Physical and chemical properties

Color	colorless, clear
Form	liquid

10. Stability and reactivity

Stability	- stable under normal conditions
Materials to avoid	- strong oxidizing agents

11. Toxicological information

Acute toxicity	- LD ₅₀ 811 mg/kg (oral, rat)	*1
	- LD ₅₀ 30 mg/kg (i.v., rat)	*1
Subacute toxicity	- NOAEL 0.09 mg/kg/d (i.v., dog, 28 d); higher doses cause kidney damage	*1
Local effects	- skin, eyes, mucous membranes: corrosive	*1
Sensitization	- non-sensitizing (guinea pig)	*1
Chronic toxicity	- NOAEL 0.15 mg/kg/w (i.v., several species; 26 weeks); higher doses cause kidney damage	*1
Mutagenicity	- not mutagenic (various in vivo and in vitro test systems)	*1

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Carcinogenicity	- not carcinogenic (oral, several species)	*1
Reproduction toxicity	- not teratogenic, not embryotoxic (i.v., several species)	*1
	- does not lower parental fertility (i.v., several species)	*1
Note	- dosage (oral): 2.5 to 50 mg/d	*1
	- dosage (i.v.): 0.5 mg/3 months to 2.5 mg/day	*1
	- high doses cause: liver damages, kidney damages	*1
	- decrease in serum calcium level possible	*1
	- inhibits mechanisms reducing bone mass by long-term binding to bone tissue	*1
*1 referring to:	Ibandronate	
12. Ecological information		
Ready biodegradability	- not readily biodegradable ≤ 3 %, 28 d (CO ₂ Evolution Test, Modified Sturm Test, OECD No. 301B)	*1
	- not readily biodegradable 0 %, 28 d (Manometric Respirometry Test, OECD No. 301 F)	*1
Inherent biodegradability	- not inherently biodegradable < 10 %, 1 d < 10 %, 15 d < 10 %, 28 d (Zahn-Wellens test, OECD No. 302 B)	*1
	- not inherently biodegradable < 10 %, 28 d (Zahn-Wellens test, OECD No. 302 B)	*1
Abiotic degradation	- stable in water, no photodegradation (200 mg/l, water) < 2 %, 14 d, ~ 22 °C, under illumination	*1
Ecotoxicity	- no adverse influence on substrate biodegradation (activated sludge) concentration (28 d) 41.5 mg/l (OECD No. 301B, Modified Sturm Test)	*1
	- barely toxic for planktonic crustaceans (<i>Daphnia magna</i>) NOEC (48 h) 100 mg/l EC ₅₀ (48 h) > 180 mg/l (OECD No. 202)	*1
	- barely toxic for fish (carp) LC ₅₀ (96 h) 200 mg/l LC ₀ (96 h) 86 mg/l (OECD No. 203)	*1
	- strongly toxic for algae (<i>Selenastrum capricornutum</i>) EbC ₅₀ (72 h) 1.4 mg/l ErC ₅₀ (72 h) 4.7 mg/l NOEC (72 h) 0.22 mg/l (OECD No. 201)	*1
	- barely inhibitory on aerobic bacterial reproduction (activated sludge) NOEC (5 h) 1300 mg/l (growth test)	*1

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	<ul style="list-style-type: none"> - highly toxic for algae (Scenedesmus (=Desmodesmus) subspicatus) EbC₅₀ (72 h) 0.218 mg/l (nominal concentration) ErC₅₀ (72 h) 0.390 mg/l (nominal concentration) NOEC (72 h) < 0.1 mg/l (nominal concentration) (OECD No. 201) *1 - highly toxic for algae (Scenedesmus (=Desmodesmus) subspicatus) EC₅₀ (14 d) 0.5 mg/l (nominal concentration) NOEC (14 d) 0.1 mg/l (nominal concentration) (OECD No. 201) *1 - no adverse influence on substrate biodegradation concentration (28 d) 100 mg/l (Manometric Respirometry Test, OECD No. 301 F) *1
Mobility	<ul style="list-style-type: none"> - no significant adsorption (, 28 d, ~22 °C) K_d = 1210 l/kg (activated sludge) (Adsorption to activated sludge in biodegradability test) *1
Note	<ul style="list-style-type: none"> - after the regular 28 days in the Zahn-Wellens test, without significant degradation and still 400 mg DOC/l, 200 mg DOC/l benzoate was added as a well degradable substrate; after 5 days, only 150 mg DOC/l was left, showing some cometabolic degradation *1 - biphosphonates form complexes with bivalent cations, in the relatively high concentrations in the algal test they deplete the medium as scavengers; hence, the effect on algae is not toxic in the strict sense *1
*1	referring to: Ibandronate
13. Disposal considerations	
Waste from residues	<ul style="list-style-type: none"> - observe local/national regulations regarding waste disposal - incinerate in qualified installation with flue gas scrubbing
RCRA waste	<ul style="list-style-type: none"> - not regulated under RCRA
14. Transport information	
Note	<ul style="list-style-type: none"> - not classified by transport regulations, proper shipping name non-regulated
15. Regulatory information	
TSCA Status	<ul style="list-style-type: none"> - FDA Exemption - not on inventory
Reporting Requirements	<ul style="list-style-type: none"> - The United States Environmental Protection Agency (USEPA) has not established a Reportable Quantity (RQ) for releases of this material. - 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. - State and local regulations vary and may impose additional reporting requirements.

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16. Other information

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| Use | - Boniva is used in the treatment and prevention of osteoporosis in postmenopausal women. |
| Edition documentation | - changes from previous version in sections 1 |

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.