

Material Name: ROMAZICON(TM) Injection (5 ml vials)
Material Code: 75029
MSDS Number .: m-011152.asc

Page: 1
Approved: 12/08/99

Roche Laboratories
a division of Hoffmann-La Roche Inc.
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Chemtrec: (800)-424-9300
Information: (800) 526-6367

MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Name: ROMAZICON(TM) Injection (5 ml vials)
Inventory Code: 75029
TSCA Status: FDA Exemption - Not on Inventory.
Therapeutic Category: Benzodiazepine receptor antagonist

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration %
Flumazenil	78755-81-4	0.0100

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical State: Liquid.
Color: Colorless (clear)

POTENTIAL HEALTH EFFECTS

Relevant Routes of
Exposure: Skin Contact, Eye Contact, Ingestion.
Target Organs: Cardiovascular System, Central Nervous System.

Acute Effects

General: May cause central nervous system effects such as headache, dizziness, drowsiness, fatigue, and lack of muscular coordination. May cause cardiovascular effects such as increase or decrease in blood pressure, irregular heartbeat, chest pain, and cardiac arrest. May cause vasodilation. Signs and symptoms include flushing of the face, sensation of heat, headache, itching and gastrointestinal distress.

Chronic Effects: No adverse effects known.

Carcinogenicity: Not listed by NTP, IARC, or OSHA.

Reproductive

Toxicity: Flumazenil
Since this material may affect the developing fetus, females planning to have a child and pregnant women should exercise caution regarding exposure. It is also advisable for nursing mothers to exercise caution regarding exposure.

SECTION 3. HAZARDS IDENTIFICATION (Continued. . .)

Conditions

Aggravated: Hypersensitivity to this material and other materials in its chemical class.

SECTION 4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If discomfort occurs or persists, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Wash skin with soap and plenty of water. If irritation occurs or persists, get medical attention. Wash clothing and shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water. If irritation 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.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not Applicable

Extinguishing Media : Water, Carbon Dioxide, Dry Chemical, Foam.

Unusual Fire and

Explosion Hazards ..: Toxic emissions may be given off in a fire. See Decomposition Products in Section 10. Stability and Reactivity.

Fire Fighting

Instructions: Wear NIOSH/MSHA approved positive pressure, self contained breathing apparatus and full protective turn out gear. Use caution in approaching fire. Use water to keep fire exposed containers cool.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill Clean Up

Procedures: Use proper personal protective equipment and clothing specified in Section 8-Exposure Controls/Personal Protection. Shut off the source of the spill or leak if it is safe to do so. Absorb small spills with absorbent material. Dike large spills and pump into metal drums or absorb with absorbent material. Put saturated absorbent 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.

Treatment and

Disposal: Decontaminate equipment. Dispose of protective clothing with the spilled material. Dispose of in accordance with recommendations in Section 13 Disposal Considerations.

SECTION 6. ACCIDENTAL RELEASE MEASURES (Continued. . .)

Reporting

Requirements: 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.

SECTION 7. HANDLING AND STORAGE

Storage Temperature

(min/max): 15 to 30 C

Shelf Life: 24 months

Handling & Storage

Precautions: Avoid contact with eyes, skin and clothing.
Avoid breathing vapor or mist.
Use with adequate ventilation.
When handling, use proper personal protective equipment specified in section 8.
Wash thoroughly after handling.
Keep container tightly closed when not in use.
Store in a dry area at room temperature.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation: General room ventilation is adequate unless the process generates mist or vapor.

PERSONAL PROTECTION

Respirator Type(s) ..: None Recommended.

Conditions for Use ..: Under normal conditions of use, respiratory protection is not expected to be necessary. OSHA considers effective engineering controls to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls. Whenever respiratory protection is used, a complete respirator program should be developed in accordance with OSHA Subpart I (29CFR1910.134) requirements.

Glove Materials: Any plastic or rubber glove.

Conditions for Use ..: Gloves are required if there is a potential for skin contact.

Skin Protection: None required under normal and foreseeable conditions of use. Consult the protective clothing manufacturer, supplier and/or industrial hygienist.

Eye Protection: Safety Glasses Required, Safety Goggles Recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued. . .)

OTHER CONTROL MEASURES

Additional

Protective Measures : Work clothing should be removed in a changeroom on site and laundered professionally. Employees should shower and change into street clothes before leaving the facility. Provide safety showers and eyewash stations in the work area.

EXPOSURE LIMITS

Flumazenil

Roche IOEL: 0.100 mg/m3 8 Hr. Time Weighted Average.

Roche IOEL: 0.200 mg/m3 Short Term Exposure Limit.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.

Color: Colorless (clear)

Pure/Mixture: Mixture.

pH: 3.4-4.6

SECTION 10. STABILITY AND REACTIVITY

Stability: Normally stable even under fire exposure conditions and not water reactive

Conditions to Avoid : None Known

Incompatibility -

Materials to Avoid .: Unknown.

Decomposition

Products: Carbon monoxide, carbon dioxide, hydrogen fluoride, oxides of nitrogen

Polymerization: No

Conditions of

Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ROMAZICON(TM) Injection (3 ml vials)

Acute Intravenous, Single Dose, Mouse: >2.5 mg/kg

Summary: Acute intravenous LD50 (mouse) is greater than 2.5 mg/kg body weight at 5 days, under the study conditions utilized.

Flumazenil

Acute Oral, Rat: 4200 mg/kg

Summary: Acute oral LD50 (rat) of 4200 mg/kg body weight classifies this material as slightly toxic orally under the study conditions utilized.

Signs of toxicity include decrease motor activity, catatonia (schizophrenia), profuse salivation, and tremors.

SECTION 11. TOXICOLOGICAL INFORMATION (Continued. . .)

Chronic Oral, Dog

Summary: No significant treatment related changes in histopathological or anatomical parameters were noted in one-year feeding study in dogs at doses of 5, 25, and 125 mg/kg/day. The clinical signs were dose-related and include sedation, decreased motor activity, and lethargy; tremors were noted in dogs at the high dose groups and elevated serum glyceride levels in female dogs in the high dose groups were also observed under the the study condtions utilized.

Reproductive Oral, Rat

Summary: In a Segment I study, there was no evidence of any impairment of fertility and reproductive capabilities of male and female rats at oral doses of 15, 45, and 125 mg/kg/day under the study conditions utilized. In another study, pregnant female rats given oral doses of 5, 25, and 125 mg/kg/day from day 15 of gestation through day 22 of lactation showed slight increases in liver weights and delays in incisor eruption and ear opening in the pups in the high dose groups.

Teratogenicity Oral, Rat

Summary: No evidence of teratogenic effects in rats when this material was administered orally at doses of 15, 50, 150 mg/kg/day from day 6 through day 15 of gestation, under the study condtions utilized.

Teratogenicity Oral, Rabbit

Summary: No evidence of teratogenic effects in rabbits when this material was administered orally at doses of 15, 50, and 150 mg/kg/day from day 6 through day 19 of gestation, under the study conditions utilized.

Mutagenicity

Summary: No evidence of mutagenicity was observed in the following in vitro assays: Ames test, "treat and plate" assay, HGPRT assay, chromosomal aberrations in human lymphocytes assay under the study conditions utilized. A positive response in the unscheduled DNA synthesis assay is not considered to be toxicologically relevant since this occurred at concentrations that were cytotoxic under the study conditions utilized and since there are negative results in other assays that measure DNA repair.

Mutagenicity Mouse

Summary: No evidence of mutagenicity was observed in the following in vivo assays: mouse micronucleus assay and the DNA repair assay in male mouse germ cells under the study conditions utilized.

SECTION 12. ECOLOGICAL INFORMATION

Flumazenil

Environmental Concentration Lethal to 50%, 48 Hour, Daphnia: >518 mg/L
Summary: The EC50 is greater than 518 mg/l which classifies this material as practically non-toxic to Daphnia under the study conditions utilized. The No Observed Effect Concentration (NOEC) is 65.6 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal

Recommendations : This material is suitable for incineration. These recommendations are based on the product as shipped. Use, processing, alteration or contamination may affect these disposal recommendations. State, local or site restrictions affecting the available proper disposal options may vary.

RCRA Waste # : Not regulated under RCRA

Empty Containers . . . : Empty containers must be triple rinsed prior to disposal, recycling, or reuse.

SECTION 14. TRANSPORTATION INFORMATION

Enforcement Agency .: US Dept. of Transportation

Country/Community .: USA

Proper Ship. Name .: Non-regulated

Enforcement Agency .: International Air Transport Association

Country/Community .: International

Proper Ship. Name .: Non-regulated

SECTION 15. REGULATORY INFORMATION

Law/Regulation : Hazardous Chemical Reporting: Community Right-To-Know
40CFR370

Common Name : SARA Title III Section 312 - Hazardous Chemical
Inventory

Enforcement Agency .: Environmental Protection Agency (EPA)

Governing Authority : USA

Criteria Met : Acute

SECTION 16. OTHER INFORMATION

Additional

Information : NFPA RATING: These ratings are based on NFPA Code 704 and are intended for use by emergency personnel to determine the immediate hazards of a material.

....Health 1
....Fire 0
....Reactivity 0

APPROVAL INFORMATION

Preparer : Annette Bucca-Janacek

Approver : Corporate Environmental & Safety Affairs

Approval Date : 12/08/99

Previous Approval

Date : 05/11/95

Reason For Issue . . . : Revision - Addition of IOEL

Material Name: ROMAZICON(TM) Injection (5 ml vials)
Material Code: 75029
MSDS Number .: m-011152.asc

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Name: ROMAZICON(TM) Injection (3 ml vials)
Inventory Code: 75026
TSCA Status: FDA Exemption - Not on Inventory.
Therapeutic Category: Benzodiazepine receptor antagonist

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration %
Flumazenil	78755-81-4	0.0100

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical State: Liquid.
Color: Colorless (clear)

POTENTIAL HEALTH EFFECTS

Relevant Routes of
Exposure: Skin Contact, Eye Contact, Ingestion.
Target Organs: Cardiovascular System, Central Nervous System.

Acute Effects

General: May cause central nervous system effects such as headache, dizziness, drowsiness, fatigue, and lack of muscular coordination. May cause cardiovascular effects such as increase or decrease in blood pressure, irregular heartbeat, chest pain, and cardiac arrest. May cause vasodilation. Signs and symptoms include flushing of the face, sensation of heat, headache, itching and gastrointestinal distress.

Chronic Effects: No adverse effects known.

Carcinogenicity: Not listed by NTP, IARC, or OSHA.

Reproductive

Toxicity: Flumazenil
Since this material may affect the developing fetus, females planning to have a child and pregnant women should exercise caution regarding exposure. It is also advisable for nursing mothers to exercise caution regarding exposure.

SECTION 3. HAZARDS IDENTIFICATION (Continued. . .)

Conditions

Aggravated: Hypersensitivity to this material and other materials in its chemical class.

SECTION 4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If discomfort occurs or persists, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Wash skin with soap and plenty of water. If irritation occurs or persists, get medical attention. Wash clothing and shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water. If irritation 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.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not Applicable

Extinguishing Media : Water, Carbon Dioxide, Dry Chemical, Foam.

Unusual Fire and

Explosion Hazards ...: Toxic emissions may be given off in a fire. See Decomposition Products in Section 10. Stability and Reactivity.

Fire Fighting

Instructions: Wear NIOSH/MSHA approved positive pressure, self contained breathing apparatus and full protective turn out gear. Use caution in approaching fire. Use water to keep fire exposed containers cool.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill Clean Up

Procedures: Use proper personal protective equipment and clothing specified in Section 8-Exposure Controls/Personal Protection. Shut off the source of the spill or leak if it is safe to do so. Absorb small spills with absorbent material. Dike large spills and pump into metal drums or absorb with absorbent material. Put saturated absorbent 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.

Treatment and

Disposal: Decontaminate equipment. Dispose of protective clothing with the spilled material. Dispose of in accordance with recommendations in Section 13 Disposal Considerations.

SECTION 6. ACCIDENTAL RELEASE MEASURES (Continued. . .)

Reporting

Requirements: 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.

SECTION 7. HANDLING AND STORAGE

Storage Temperature

(min/max): 15 to 30 C

Shelf Life: 24 months

Handling & Storage

Precautions: Avoid contact with eyes, skin and clothing.
Avoid breathing vapor or mist.
Use with adequate ventilation.
When handling, use proper personal protective equipment specified in section 8.
Wash thoroughly after handling.
Keep container tightly closed when not in use.
Store in a dry area at room temperature.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation: General room ventilation is adequate unless the process generates mist or vapor.

PERSONAL PROTECTION

Respirator Type(s) ..: None Recommended.

Conditions for Use ..: Under normal conditions of use, respiratory protection is not expected to be necessary. OSHA considers effective engineering controls to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls. Whenever respiratory protection is used, a complete respirator program should be developed in accordance with OSHA Subpart I (29CFR1910.134) requirements.

Glove Materials: Any plastic or rubber glove.

Conditions for Use ..: Gloves are required if there is a potential for skin contact.

Skin Protection: None required under normal and foreseeable conditions of use. Consult the protective clothing manufacturer, supplier and/or industrial hygienist.

Eye Protection: Safety Glasses Required, Safety Goggles Recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued. . .)

OTHER CONTROL MEASURES

Additional

Protective Measures : Work clothing should be removed in a changeroom on site and laundered professionally. Employees should shower and change into street clothes before leaving the facility. Provide safety showers and eyewash stations in the work area.

EXPOSURE LIMITS

Flumazenil

Roche IOEL: 0.100 mg/m³ 8 Hr. Time Weighted Average.

Roche IOEL: 0.200 mg/m³ Short Term Exposure Limit.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Colorless (clear)
Pure/Mixture: Mixture.
pH: 3.4-4.6

SECTION 10. STABILITY AND REACTIVITY

Stability: Normally stable even under fire exposure conditions and not water reactive
Conditions to Avoid : None Known
Incompatibility -
Materials to Avoid .: Unknown.
Decomposition
Products: Carbon monoxide, carbon dioxide, hydrogen fluoride, oxides of nitrogen
Polymerization: No
Conditions of
Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ROMAZICON(TM) Injection (3 ml vials)

Acute Intravenous, Single Dose, Mouse: >2.5 mg/kg

Summary: Acute intravenous LD50 (mouse) is greater than 2.5 mg/kg body weight at 5 days, under the study conditions utilized.

Flumazenil

Acute Oral, Rat: 4200 mg/kg

Summary: Acute oral LD50 (rat) of 4200 mg/kg body weight classifies this material as slightly toxic orally under the study conditions utilized.

Signs of toxicity include decrease motor activity, catatonia (schizophrenia), profuse salivation, and tremors.

SECTION 11. TOXICOLOGICAL INFORMATION (Continued. . .)

Chronic Oral, Dog

Summary: No significant treatment related changes in histopathological or anatomical parameters were noted in one-year feeding study in dogs at doses of 5, 25, and 125 mg/kg/day. The clinical signs were dose-related and include sedation, decreased motor activity, and lethargy; tremors were noted in dogs at the high dose groups and elevated serum glyceride levels in female dogs in the high dose groups were also observed under the the study condtions utilized.

Reproductive Oral, Rat

Summary: In a Segment I study, there was no evidence of any impairment of fertility and reproductive capabilities of male and female rats at oral doses of 15, 45, and 125 mg/kg/day under the study conditions utilized. In another study, pregnant female rats given oral doses of 5, 25, and 125 mg/kg/day from day 15 of gestation through day 22 of lactation showed slight increases in liver weights and delays in incisor eruption and ear opening in the pups in the high dose groups.

Teratogenicity Oral, Rat

Summary: No evidence of teratogenic effects in rats when this material was administered orally at doses of 15, 50, 150 mg/kg/day from day 6 through day 15 of gestation, under the study condtions utilized.

Teratogenicity Oral, Rabbit

Summary: No evidence of teratogenic effects in rabbits when this material was administered orally at doses of 15, 50, and 150 mg/kg/day from day 6 through day 19 of gestation, under the study conditions utilized.

Mutagenicity

Summary: No evidence of mutagenicity was observed in the following in vitro assays: Ames test, "treat and plate" assay, HGPRT assay, chromosomal aberrations in human lymphocytes assay under the study conditions utilized. A positive response in the unscheduled DNA synthesis assay is not considered to be toxicologically relevant since this occurred at concentrations that were cytotoxic under the study conditions utilized and since there are negative results in other assays that measure DNA repair.

Mutagenicity Mouse

Summary: No evidence of mutagenicity was observed in the following in vivo assays: mouse micronucleus assay and the DNA repair assay in male mouse germ cells under the study conditions utilized.

SECTION 12. ECOLOGICAL INFORMATION

Flumazenil

Environmental Concentration Lethal to 50%, 48 Hour, Daphnia: >518 mg/L
Summary: The EC50 is greater than 518 mg/l which classifies this material as practically non-toxic to Daphnia under the study conditions utilized. The No Observed Effect Concentration (NOEC) is 65.6 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal

Recommendations: This material is suitable for incineration. These recommendations are based on the product as shipped. Use, processing, alteration or contamination may affect these disposal recommendations. State, local or site restrictions affecting the available proper disposal options may vary.

RCRA Waste #: Not regulated under RCRA

Empty Containers . . .: Empty containers must be triple rinsed prior to disposal, recycling, or reuse.

SECTION 14. TRANSPORTATION INFORMATION

Enforcement Agency .: US Dept. of Transportation
Country/Community .: USA
Proper Ship. Name .: Non-regulated

Enforcement Agency .: International Air Transport Association
Country/Community .: International
Proper Ship. Name .: Non-regulated

SECTION 15. REGULATORY INFORMATION

Law/Regulation: Hazardous Chemical Reporting: Community Right-To-Know
40CFR370

Common Name: SARA Title III Section 312 - Hazardous Chemical
Inventory

Enforcement Agency .: Environmental Protection Agency (EPA)

Governing Authority : USA

Criteria Met: Acute

SECTION 16. OTHER INFORMATION

Additional

Information: NFPA RATING: These ratings are based on NFPA Code 704 and are intended for use by emergency personnel to determine the immediate hazards of a material.

. . . .Health 1
. . . .Fire 0
. . . .Reactivity 0

APPROVAL INFORMATION

Preparer: Annette Bucca-Janacek

Approver: Corporate Environmental & Safety Affairs

Approval Date: 12/08/99

Previous Approval

Date: 05/11/95

Reason For Issue . . .: Revision - Addition of IOEL

Material Name: ROMAZICON(TM) Injection (3 ml vials)
Material Code: 75026
MSDS Number .: m-011151.asc

Page: 7
Approved: 12/08/99

The information presented on this MSDS is, to the best of our knowledge, accurate and reliable. It is provided in good faith without warranty or acceptance of any liability on the part of Hoffmann-LaRoche, Inc. It is the responsibility of the user to evaluate the relevance and completeness of this information for their application and to determine the safety, suitability and status under applicable regulations relating to this product or byproducts arising out of their process.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Name: ROMAZICON(TM) Injection (10 ml vials)
Inventory Code: 75032
TSCA Status: FDA Exemption - Not on Inventory.
Therapeutic Category: Benzodiazepine receptor antagonist

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration %
Flumazenil	78755-81-4	0.0100

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical State: Liquid.
Color: Colorless (clear)

POTENTIAL HEALTH EFFECTS

Relevant Routes of
Exposure: Skin Contact, Eye Contact, Ingestion.
Target Organs: Cardiovascular System, Central Nervous System.

Acute Effects

General: May cause central nervous system effects such as headache, dizziness, drowsiness, fatigue, and lack of muscular coordination. May cause cardiovascular effects such as increase or decrease in blood pressure, irregular heartbeat, chest pain, and cardiac arrest. May cause vasodilation. Signs and symptoms include flushing of the face, sensation of heat, headache, itching and gastrointestinal distress.

Chronic Effects: No adverse effects known.

Carcinogenicity: Not listed by NTP, IARC, or OSHA.

Reproductive

Toxicity: Flumazenil
Since this material may affect the developing fetus, females planning to have a child and pregnant women should exercise caution regarding exposure. It is also advisable for nursing mothers to exercise caution regarding exposure.

SECTION 3. HAZARDS IDENTIFICATION (Continued. . .)

Conditions

Aggravated: Hypersensitivity to this material and other materials in its chemical class.

SECTION 4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If discomfort occurs or persists, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Wash skin with soap and plenty of water. If irritation occurs or persists, get medical attention. Wash clothing and shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water. If irritation 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.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not Applicable

Extinguishing Media : Water, Carbon Dioxide, Dry Chemical, Foam.

Unusual Fire and

Explosion Hazards ...: Toxic emissions may be given off in a fire. See Decomposition Products in Section 10. Stability and Reactivity.

Fire Fighting

Instructions: Wear NIOSH/MSHA approved positive pressure, self contained breathing apparatus and full protective turn out gear. Use caution in approaching fire. Use water to keep fire exposed containers cool.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill Clean Up

Procedures: Use proper personal protective equipment and clothing specified in Section 8-Exposure Controls/Personal Protection. Shut off the source of the spill or leak if it is safe to do so. Absorb small spills with absorbent material. Dike large spills and pump into metal drums or absorb with absorbent material. Put saturated absorbent 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.

Treatment and

Disposal: Decontaminate equipment. Dispose of protective clothing with the spilled material. Dispose of in accordance with recommendations in Section 13 Disposal Considerations.

SECTION 6. ACCIDENTAL RELEASE MEASURES (Continued. . .)

Reporting

Requirements: 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.

SECTION 7. HANDLING AND STORAGE

Storage Temperature

(min/max): 15 to 30 C

Shelf Life: 24 months

Handling & Storage

Precautions: Avoid contact with eyes, skin and clothing.
Avoid breathing vapor or mist.
Use with adequate ventilation.
When handling, use proper personal protective equipment specified in section 8.
Wash thoroughly after handling.
Keep container tightly closed when not in use.
Store in a dry area at room temperature.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation: General room ventilation is adequate unless the process generates mist or vapor.

PERSONAL PROTECTION

Respirator Type(s) .: None Recommended.

Conditions for Use .: Under normal conditions of use, respiratory protection is not expected to be necessary. OSHA considers effective engineering controls to be the primary means to control worker exposure. Respiratory protection should not substitute for feasible engineering controls. Whenever respiratory protection is used, a complete respirator program should be developed in accordance with OSHA Subpart I (29CFR1910.134) requirements.

Glove Materials: Any plastic or rubber glove.

Conditions for Use .: Gloves are required if there is a potential for skin contact.

Skin Protection: None required under normal and foreseeable conditions of use. Consult the protective clothing manufacturer, supplier and/or industrial hygienist.

Eye Protection: Safety Glasses Required, Safety Goggles Recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued. . .)

OTHER CONTROL MEASURES

Additional

Protective Measures : Work clothing should be removed in a changeroom on site and laundered professionally. Employees should shower and change into street clothes before leaving the facility. Provide safety showers and eyewash stations in the work area.

EXPOSURE LIMITS

Flumazenil

Roche IOEL: 0.100 mg/m³ 8 Hr. Time Weighted Average.

Roche IOEL: 0.200 mg/m³ Short Term Exposure Limit.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Colorless (clear)
Pure/Mixture: Mixture.
pH: 3.4-4.6

SECTION 10. STABILITY AND REACTIVITY

Stability: Normally stable even under fire exposure conditions and not water reactive
Conditions to Avoid : None Known
Incompatibility -
Materials to Avoid .: Unknown.
Decomposition
Products: Carbon monoxide, carbon dioxide, hydrogen fluoride, oxides of nitrogen
Polymerization: No
Conditions of
Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ROMAZICON(TM) Injection (3 ml vials)

Acute Intravenous, Single Dose, Mouse: >2.5 mg/kg

Summary: Acute intravenous LD50 (mouse) is greater than 2.5 mg/kg body weight at 5 days, under the study conditions utilized.

Flumazenil

Acute Oral, Rat: 4200 mg/kg

Summary: Acute oral LD50 (rat) of 4200 mg/kg body weight classifies this material as slightly toxic orally under the study conditions utilized.

Signs of toxicity include decrease motor activity, catatonia (schizophrenia), profuse salivation, and tremors.

SECTION 11. TOXICOLOGICAL INFORMATION (Continued. . .)

Chronic Oral, Dog

Summary: No significant treatment related changes in histopathological or anatomical parameters were noted in one-year feeding study in dogs at doses of 5, 25, and 125 mg/kg/day. The clinical signs were dose-related and include sedation, decreased motor activity, and lethargy; tremors were noted in dogs at the high dose groups and elevated serum glyceride levels in female dogs in the high dose groups were also observed under the the study condtions utilized.

Reproductive Oral, Rat

Summary: In a Segment I study, there was no evidence of any impairment of fertility and reproductive capabilities of male and female rats at oral doses of 15, 45, and 125 mg/kg/day under the study conditions utilized. In another study, pregnant female rats given oral doses of 5, 25, and 125 mg/kg/day from day 15 of gestation through day 22 of lactation showed slight increases in liver weights and delays in incisor eruption and ear opening in the pups in the high dose groups.

Teratogenicity Oral, Rat

Summary: No evidence of teratogenic effects in rats when this material was administered orally at doses of 15, 50, 150 mg/kg/day from day 6 through day 15 of gestation, under the study condtions utilized.

Teratogenicity Oral, Rabbit

Summary: No evidence of teratogenic effects in rabbits when this material was administered orally at doses of 15, 50, and 150 mg/kg/day from day 6 through day 19 of gestation, under the study conditions utilized.

Mutagenicity

Summary: No evidence of mutagenicity was observed in the following in vitro assays: Ames test, "treat and plate" assay, HGPRT assay, chromosomal aberrations in human lymphocytes assay under the study conditions utilized. A positive response in the unscheduled DNA synthesis assay is not considered to be toxicologically relevant since this occurred at concentrations that were cytotoxic under the study conditions utilized and since there are negative results in other assays that measure DNA repair.

Mutagenicity Mouse

Summary: No evidence of mutagenicity was observed in the following in vivo assays: mouse micronucleus assay and the DNA repair assay in male mouse germ cells under the study conditions utilized.

SECTION 12. ECOLOGICAL INFORMATION

Flumazenil

Environmental Concentration Lethal to 50%, 48 Hour, Daphnia: >518 mg/L
Summary: The EC50 is greater than 518 mg/l which classifies this material as practically non-toxic to Daphnia under the study conditions utilized. The No Observed Effect Concentration (NOEC) is 65.6 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal

Recommendations : This material is suitable for incineration. These recommendations are based on the product as shipped. Use, processing, alteration or contamination may affect these disposal recommendations. State, local or site restrictions affecting the available proper disposal options may vary.

RCRA Waste # : Not regulated under RCRA

Empty Containers . . . : Empty containers must be triple rinsed prior to disposal, recycling, or reuse.

SECTION 14. TRANSPORTATION INFORMATION

Enforcement Agency .: US Dept. of Transportation
Country/Community .: USA
Proper Ship. Name .: Non-regulated

Enforcement Agency .: International Air Transport Association
Country/Community .: International
Proper Ship. Name .: Non-regulated

SECTION 15. REGULATORY INFORMATION

Law/Regulation : Hazardous Chemical Reporting: Community Right-To-Know
40CFR370

Common Name : SARA Title III Section 312 - Hazardous Chemical
Inventory

Enforcement Agency .: Environmental Protection Agency (EPA)

Governing Authority : USA

Criteria Met : Acute

SECTION 16. OTHER INFORMATION

Additional

Information : NFPA RATING: These ratings are based on NFPA Code 704 and are intended for use by emergency personnel to determine the immediate hazards of a material.

....Health 1
....Fire 0
....Reactivity 0

APPROVAL INFORMATION

Preparer : Annette Bucca-Janacek

Approver : Corporate Environmental & Safety Affairs

Approval Date : 12/08/99

Previous Approval

Date : 05/11/95

Reason For Issue . . . : Revision - Addition of IOEL

Material Name: ROMAZICON(TM) Injection (10 ml vials)
Material Code: 75032
MSDS Number .: m-011785.asc

Page: 7
Approved: 12/08/99

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