SAFETY DATA SHEET

ESBRIET® F.C. Tablets (801 mg)

SECTION 1. IDENTIFICATION

Product name : ESBRIET® F.C. Tablets (801 mg)
Product code : RO022-0912/F12

Manufacturer or supplier’s details
Company name of supplier : Genentech, Inc.
Address : DNA Way 1
           94080 South San Francisco
           CA
           USA
Telephone : 001-(650) 225-1000
E-mail address : info.sds@roche.com
Emergency telephone : US Chemtrec phone (800)-424-9300

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Acute toxicity (Oral) : Category 4
Carcinogenicity : Category 2

GHS label elements
Hazard pictograms :

Signal Word : Warning
Hazard Statements : H302 Harmful if swallowed.
                   H351 Suspected of causing cancer.
Precautionary Statements : Prevention:
                           P201 Obtain special instructions before use.
                           P202 Do not handle until all safety precautions have been read
                           and understood.
                           P264 Wash skin thoroughly after handling.
                           P270 Do not eat, drink or smoke when using this product.
                           P280 Wear protective gloves/ protective clothing/ eye protection/

Date of last issue: -
Date of first issue: 01-29-2020
face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. 
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container to an approved waste dis- posal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirfenidone</td>
<td>53179-13-8</td>
<td>81.2</td>
</tr>
<tr>
<td>Cellulose</td>
<td>9004-34-6</td>
<td>6.0</td>
</tr>
<tr>
<td>2-Pyrrolidinone, 1-ethenyl-, homopolymer</td>
<td>9003-39-8</td>
<td>4.5</td>
</tr>
<tr>
<td>Silica</td>
<td>7631-86-9</td>
<td>2.4</td>
</tr>
<tr>
<td>Croscarmellose sodium</td>
<td>74811-65-7</td>
<td>1.8</td>
</tr>
<tr>
<td>Octadecanoic acid, magnesium salt (2:1)</td>
<td>557-04-0</td>
<td>0.5</td>
</tr>
<tr>
<td>Titanium oxide (TiO2)</td>
<td>13463-67-7</td>
<td>&lt;= 1.0</td>
</tr>
<tr>
<td>non hazardous compounds</td>
<td>Not Assigned</td>
<td>2.7</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.  
Show this material safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.

If inhaled : Move to fresh air.  
If unconscious, place in recovery position and seek medical advice.  
If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.

In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed:
- Keep respiratory tract clear.
- Do not give milk or alcoholic beverages.
- Never give anything by mouth to an unconscious person.
- If symptoms persist, call a physician.
- Rinse mouth with water.

Most important symptoms and effects, both acute and delayed:
- Harmful if swallowed.
- Suspected of causing cancer.

Notes to physician:
- The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: High volume water jet

Specific hazards during fire fighting: Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products: In case of fire hazardous decomposition products may be produced such as:
- Carbon oxides
- Nitrogen oxides (NOx)

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Avoid exposure
- Avoid dust formation.
- Avoid breathing dust.

Environmental precautions:
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up:
- Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE
Advice on protection against fire and explosion: Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling: Avoid formation of respirable particles. Do not breathe vapors/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage conditions: See label, package insert or internal guidelines

Storage temperature: To 30 °C. Protect against light. Protect from moisture.

Further information on storage stability: No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirfenidone</td>
<td>53179-13-8</td>
<td>IOEL</td>
<td>2 mg/m3</td>
<td>Roche Industrial Hygiene Committee (RIHC)</td>
</tr>
<tr>
<td>Cellulose</td>
<td>9004-34-6</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable)</td>
<td>5 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total)</td>
<td>10 mg/m3</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total dust)</td>
<td>15 mg/m3</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable fraction)</td>
<td>5 mg/m3</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Total dust)</td>
<td>15 mg/m3</td>
<td>OSHA P0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable dust fraction)</td>
<td>5 mg/m3</td>
<td>OSHA P0</td>
</tr>
<tr>
<td>Silica</td>
<td>7631-86-9</td>
<td>TWA (Dust)</td>
<td>20 Million particles per cubic</td>
<td>OSHA Z-3</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirfenidone</td>
<td>Surface waters</td>
<td>1.06 mg/l</td>
</tr>
</tbody>
</table>

### Predicted No Effect Concentration (PNEC):

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirfenidone</td>
<td>Surface waters</td>
<td>1.06 mg/l</td>
</tr>
</tbody>
</table>

### Engineering measures

- No data available

### Personal protective equipment

#### Hand protection

- Material: Protective gloves
  - Remarks: Wear appropriate protective gloves to prevent skin contact. Replace torn or punctured gloves promptly.

#### Eye protection

- Eye wash bottle with pure water
- Tightly fitting safety goggles

#### Skin and body protection

- Dust impervious protective suit
- Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Hygiene measures

- When using do not eat or drink.
- When using do not smoke.
- Wash hands before breaks and at the end of workday.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: tablet
- **Color**: light yellow
- **Odor**: Not applicable
- **Odor Threshold**: Not applicable
### pH
- Not applicable

### Melting point/range
- No data available

### Boiling point/boiling range
- No data available

### Evaporation rate
- No data available

### Self-ignition
- No data available

### Upper explosion limit / Upper flammability limit
- No data available

### Lower explosion limit / Lower flammability limit
- No data available

### Vapor pressure
- No data available

### Relative vapor density
- Not applicable

### Relative density
- No data available

### Solubility(ies)
- **Water solubility**: No data available
- **Solubility in other solvents**: No data available

### Partition coefficient: n-octanol/water
- No data available

### Autoignition temperature
- No data available

### Decomposition temperature
- No data available

### Viscosity
- **Viscosity, dynamic**: Not applicable
- **Viscosity, kinematic**: Not applicable

### Explosive properties
- No data available

### Oxidizing properties
- No data available

### SECTION 10. STABILITY AND REACTIVITY

**Reactivity**: No dangerous reaction known under conditions of normal use.

**Chemical stability**: Stable under normal conditions.

**Possibility of hazardous reactions**: No decomposition if stored and applied as directed.

**Incompatible materials**: No data available
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Hazardous decomposition products : No data available

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity : Acute toxicity estimate: 1,571 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 93.36 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Components:

Pirfenidone:
Acute oral toxicity : LD50 Oral (Rat): 1,295 mg/kg

Cellulose:
Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg
Acute dermal toxicity : LD50 Dermal (Rabbit): > 2,000 mg/kg

Silica:
Acute oral toxicity : LD50 Oral (Rat): > 3,300 mg/kg
Acute dermal toxicity : LD50 Dermal (Rabbit): > 5,000 mg/kg

Titanium oxide (TiO2):
Acute oral toxicity : LD50 (Rat): > 7,500 mg/kg
Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

Octadecanoic acid, magnesium salt (2:1):
Acute oral toxicity : LD50 Oral (Rat): > 2,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.
Components:

Pirfenidone:
Result: No skin irritation

Silica:
Result: No skin irritation

**Serious eye damage/eye irritation**
Not classified based on available information.

Components:

Pirfenidone:
Result: No eye irritation

Silica:
Result: No eye irritation

**Respiratory or skin sensitization**

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

Silica:
Result: Did not cause sensitization on laboratory animals.

**Germ cell mutagenicity**
Not classified based on available information.

Carcinogenicity
Suspected of causing cancer.

Components:

Cellulose:
Remarks: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**IARC**
Group 2B: Possibly carcinogenic to humans
Titanium oxide (TiO2) 13463-67-7

**OSHA**
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**NTP**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
Reproductive toxicity
Not classified based on available information.

Components:

Pirfenidone:
Effects on fertility: Species: laboratory animal
Symptoms: No effects on fertility.

Effects on fetal development: Species: laboratory animal
Result: No teratogenic potential.

STOT-single exposure
Not classified based on available information.

Components:

Silica:
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Octadecanoic acid, magnesium salt (2:1):
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure
Not classified based on available information.

Components:

Silica:
Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Octadecanoic acid, magnesium salt (2:1):
Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity
Not classified based on available information.

Components:

Silica:
No data available

Octadecanoic acid, magnesium salt (2:1):
No data available
Experience with human exposure

**Components:**

**Pirfenidone:**

General Information

Symptoms: Nausea, Rash, Dizziness, digestive disorder, Vomiting, decrease in appetite, joint pain.

SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**Pirfenidone:**

Toxicity to algae/aquatic plants

- **ErC50** (Pseudokirchneriella subcapitata (green algae)): 67.1 mg/l
  Method: OECD Test Guideline 201

- **EbC50** (Pseudokirchneriella subcapitata (green algae)): 44 mg/l
  Method: OECD Test Guideline 201

- **NOEC** (Pseudokirchneriella subcapitata (green algae)): 18.3 mg/l
  Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity)

- **NOEC** (Pimephales promelas (fathead minnow)): 10.6 mg/l
  Exposure time: 28 d
  Test Type: Fish early-life stage (FELS) toxicity test (OECD 210)
  Method: OECD Test Guideline 210
  Remarks: average measured concentration

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

- **NOEC** (Daphnia magna (Water flea)): 94 mg/l
  Exposure time: 21 d
  Method: OECD Test Guideline 211
  Remarks: average measured concentration

Toxicity to microorganisms

- **NOEC** (activated sludge): 100 mg/l
  Exposure time: 3 h
  Test Type: Respiration inhibition
  Method: OECD Test Guideline 209
  Remarks: Barely inhibitory on aerobic bacterial respiration

  (activated sludge): 578 mg/l
  Exposure time: 3 h
  Test Type: Respiration inhibition
  Method: OECD Test Guideline 209
  Remarks: Barely inhibitory on aerobic bacterial respiration
**SAFETY DATA SHEET**

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**Cellulose:**

**Ecotoxicology Assessment**

Acute aquatic toxicity: This product has no known ecotoxicological effects.

Chronic aquatic toxicity: This product has no known ecotoxicological effects.

**Silica:**

Toxicity to daphnia and other aquatic invertebrates: EC0 (Daphnia magna (Water flea)): > 10,000 mg/l  
Exposure time: 24 h

Toxicity to algae/aquatic plants: IC50 (Pseudokirchneriella subcapitata (green algae)): 440 mg/l  
Exposure time: 72 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 60 mg/l  
Exposure time: 72 h

**Ecotoxicology Assessment**

Toxicity Data on Soil: Not expected to adsorb on soil.

Other organisms relevant to the environment: No data available

**Titanium oxide (TiO2):**

Toxicity to fish: LC0 (Leuciscus idus (Golden orfe)): > 1,000 mg/l  
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates: EC0 (Daphnia magna (Water flea)): 3 mg/l  
Exposure time: 720 h

**Ecotoxicology Assessment**

Toxicity Data on Soil: Not expected to adsorb on soil.

Other organisms relevant to the environment: No data available

**Octadecanoic acid, magnesium salt (2:1):**

**Ecotoxicology Assessment**

Acute aquatic toxicity: This product has no known ecotoxicological effects.

Chronic aquatic toxicity: This product has no known ecotoxicological effects.

Toxicity Data on Soil: Not expected to adsorb on soil.

Other organisms relevant to the environment: No data available
Persistence and degradability

Components:

Pirfenidone:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 9 %
Exposure time: 29 d
Method: OECD Test Guideline 301B

Bioaccumulative potential

Components:

Pirfenidone:
Partition coefficient: n-octanol/water : log Pow: 0.9

Cellulose:
Partition coefficient: n-octanol/water : Remarks: No data available

Silica:
Partition coefficient: n-octanol/water : Remarks: No data available

Titanium oxide (TiO2):
Partition coefficient: n-octanol/water : Remarks: No data available

Octadecanoic acid, magnesium salt (2:1):
Partition coefficient: n-octanol/water : log Pow: 0.8
Method: OECD Test Guideline 107

Mobility in soil
No data available

Other adverse effects

Product:
Ozone-Depletion Potential: Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.
Components:

Pirfenidone:
Results of PBT and vPvB assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Can be disposed as waste water, when in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations
UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

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

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.
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SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component TPQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 311/312 Hazards</td>
<td>Acute toxicity (any route of exposure) Carcinogenicity</td>
<td></td>
</tr>
</tbody>
</table>

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCML Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

- Cellulose 9004-34-6
- Silica 7631-86-9
- Titanium oxide (TiO2) 13463-67-7

Pennsylvania Right To Know

- Pirfenidone 53179-13-8
- Cellulose 9004-34-6
- 2-Pyrrrolidinone, 1-ethenyl-, homopolymer 9003-39-8
- Silica 7631-86-9
- Titanium oxide (TiO2) 13463-67-7

Maine Chemicals of High Concern

Vermont Chemicals of High Concern

Washington Chemicals of High Concern

California Prop. 65

WARNING: This product can expose you to chemicals including Titanium oxide (TiO2), which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

- 2-Pyrrrolidinone, 1-ethenyl-, homopolymer 9003-39-8
- Silica 7631-86-9

California Permissible Exposure Limits for Chemical Contaminants

- Cellulose 9004-34-6
- Silica 7631-86-9
- Titanium oxide (TiO2) 13463-67-7
The ingredients of this product are reported in the following inventories:

**DSL**: This product contains the following components that are not on the Canadian DSL nor NDSL.
- Pirfenidone
- Non hazardous compounds
- Croscarmellose sodium

**AICS**: Not in compliance with the inventory

**NZIoC**: Not in compliance with the inventory

**ENCS**: Not in compliance with the inventory

**ISHL**: Not in compliance with the inventory

**KECI**: Not in compliance with the inventory

**PICCS**: Not in compliance with the inventory

**IECSC**: Not in compliance with the inventory

**TCSI**: Not in compliance with the inventory

**TSCA**: Substance(s) not listed on TSCA inventory

**TSCA list**
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION
NFPA:

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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</table>

Special hazard

HMIS® IV:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
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<td>0</td>
</tr>
</tbody>
</table>

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The '*' represents a chronic hazard, while the '/' represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Duffs
ACGIH / TWA : 8-hour, time-weighted average
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA : 8-hour time weighted average
OSHA Z-1 / TWA : 8-hour time weighted average
OSHA Z-3 / TWA : 8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office...
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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