

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 11/10/2023

Reviewed on 11/10/2023

### 1 Identification

- **Product Identifier**
- **Trade Name:** FLUOSOLV FR-110 (Aerosol)
- **Product Number:** FX-FR110A
- **Relevant identified uses of the substance or mixture and uses advised against:**  
No further relevant information available.
- **Product Description:** VOC free contact-cleaner solvent
- **Application of the substance / the mixture:** Aerosol and cold-cleaning wipe solvent
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**  
NuGeneration Technologies, LLC (dba NuGenTec)  
1155 Park Ave, Emeryville, CA 94608  
fluosolv@nugentec.com  
For Product Info call 1-(800) 409-3142  
www.fluosolv.com  
www.nugentec.com/fluosolv
- **Emergency telephone number:** PERS Emergency response: 1-801-629-0667

### 2 Hazard(s) Identification

- **Classification of the substance or mixture:**



Eye Irritation 2A H319 Causes serious eye irritation.

- **Label elements:**
- **Hazard pictograms:**



- **Signal word:** Warning
- **Hazard statements:**  
H319 Causes serious eye irritation.
- **Precautionary statements:**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P211 Do not spray on an open flame or other ignition source.  
P251 Pressurized container: Do not pierce or burn, even after use.  
P264 Wash thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.
- **Unknown acute toxicity:**  
2 % of the mixture consists of component(s) of unknown toxicity.

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**Trade Name: FLUOSOLV FR-110 (Aerosol)**

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 1  
 Fire = 3  
 Reactivity = 1

- **HMIS-ratings (scale 0 - 4)**



Health = 1  
 Fire = 3  
 Physical Hazard = 1

- **Hazard(s) not otherwise classified (HNOC):** None known

### 3 Composition/Information on Ingredients

- **Non-hazardous components:**

Non-Hazardous Components	<50%
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- **Chemical characterization: Substance**

- **Description:** Mixture of substances listed below with non-hazardous additions.

- **Dangerous Components:**

	PROPRIETARY AEROSOL FLUORINATED MIXTURE Eye Irritation 2B, H320; Aquatic Acute 3, H402; Simple Asphyxiant	65%
CAS: 67-64-1 RTECS: AL 3150000	Acetone ⚠ Flammable Liquids 2, H225; ⚠ Eye Irritation 2A, H319; Specific Target Organ Toxicity - Single Exposure 3, H336	Proprietary%
CAS: 124-38-9 RTECS: FF 6400000	Carbon Dioxide ⚠ Gases under Pressure - Compressed gas, H280; Simple Asphyxiant	<5%

### 4 First-Aid Measures

- **Description of first aid measures**

- **General information:** Take affected persons out into the fresh air.

- **After inhalation:**

Generally the product does not irritate with inhalation.

Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in the side position for transportation.

- **After skin contact:**

Wash with soap and water.

If skin irritation occurs, consult a doctor.

- **After eye contact:**

Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.

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- **After swallowing:** If swallowed and symptoms occur, consult a doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed:** Breathing difficulty
- **Indication of any immediate medical attention and special treatment needed:**  
No further relevant information available.

### 5 Fire-Fighting Measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Use fire fighting measures that suit the environment.  
Use water spray to cool fire-exposed containers.
- **For safety reasons unsuitable extinguishing agents:** No further relevant information is available.
- **Special hazards arising from the substance or mixture:**  
Emits toxic corrosive fumes under fire conditions.  
Closed containers may explode when exposed to extreme heat.
- **Advice for firefighters**  
This aerosol mixture is flammable; and, containers, when involved in fire, may rupture or burst in the heat of the fire.
- **Special protective equipment for firefighters:**  
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

### 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**  
Keep away from ignition sources
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**  
Ensure adequate ventilation.  
Dispose of the collected material according to regulations.
- **Reference to other sections:**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and Storage

- **Handling**
- **Precautions for safe handling:** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.  
Protect from heat.

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Do not spray on a naked flame or any incandescent material.  
Do not cut, grind or weld on container that contains or contained product.

- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Protect from heat and direct sunlight.
- **Specific end use(s):** No further relevant information available.

### 8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters:**
- **Components with occupational exposure limits:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the remaining constituents have no known exposure limits.

#### 67-64-1 Acetone

PEL	Long-term value: 2400 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 590 mg/m <sup>3</sup> , 250 ppm
TLV	Short-term value: 1187 mg/m <sup>3</sup> , 500 ppm Long-term value: 594 mg/m <sup>3</sup> , 250 ppm BEI

#### 124-38-9 Carbon Dioxide

PEL	Long-term value: 9000 mg/m <sup>3</sup> , 5000 ppm
REL	Short-term value: 54,000 mg/m <sup>3</sup> , 30,000 ppm Long-term value: 9000 mg/m <sup>3</sup> , 5000 ppm
TLV	Short-term value: 54,000 mg/m <sup>3</sup> , 30,000 ppm Long-term value: 9000 mg/m <sup>3</sup> , 5000 ppm

Fluosolv FR-110 (Calculated Allowable Exposure Limits)  
AEL 865 ppm

- **Ingredients with biological limit values:**

#### 67-64-1 Acetone

BEI	50 mg/L urine end of shift Acetone (nonspecific)
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- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

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- **Exposure controls:**
- **Personal protective equipment**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing and wash before reuse.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:** Use suitable respiratory protective device in case of insufficient ventilation.
- **Protection of hands:** Not required.
- **Material of gloves:** Not required.
- **Penetration time of glove material:** Not applicable.
- **Eye protection:**



Safety glasses

- **Body protection:** Not required.

### 9 Physical and Chemical Properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

<b>Form:</b>	Aerosol
<b>Color:</b>	Colorless
· <b>Odor:</b>	Weak, characteristic
· <b>Odor threshold:</b>	Not determined.

- **pH-value:** Not Applicable

- **Change in condition**

<b>Melting point/Melting range:</b>	Not applicable.
<b>Boiling point/Boiling range:</b>	48 °C (118.4 °F) (bulk liquid)

- **Flash point:** NONE (bulk fluid)

- **Flammability (solid, gaseous):** Not applicable.

- **Auto igniting:** 465 °C (869 °F)

- **Decomposition temperature:** ≥ 200 deg C (392 deg F)

- **Ignition temperature:** Product is not self-igniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

<b>Lower:</b>	2.6 Vol %
<b>Upper:</b>	13.0 Vol %

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· <b>Vapor pressure @ 20 °C (68 °F):</b>	5716 hPa (4,287.4 mm Hg)
· <b>Density:</b>	
<b>Relative density:</b>	Not determined.
<b>Vapor density:</b>	3.1 (Air=1)
<b>Evaporation rate:</b>	Not applicable.
· <b>Solubility in / Miscibility with:</b>	
<b>Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>VOC content:</b>	0 g/l (per SCAQMD methodology)
<b>Solids content:</b>	Not applicable
· <b>Other information:</b>	No further relevant information available.

### 10 Stability and Reactivity

- **Reactivity:** Stable under normal conditions.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** Certain plastics. - Test parts before use.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

#### 67-64-1 Acetone

Oral	LD50	5800 mg/kg (Rat)
Dermal	LD50	20000 mg/kg (rabbit)
Inhalative	LC50/4 h	5549 mg/l (Trout) (96 hr)

- **Primary irritant effect:**
- **On the skin:** No irritating effect.
- **On the eye:** Irritating effect.

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**Trade Name: FLUOSOLV FR-110 (Aerosol)**

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

· **Carcinogenic categories:**

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

## 12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:**

Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

**67-64-1 Acetone**

EC50 6100 mg/l (Pimephales) (48 hr)

· **Persistence and degradability:** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential:** No further relevant information available.

· **Mobility in soil:** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** Harmful to fish

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Harmful to aquatic organisms

· **Results of PBT and vPvB assessment:**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects:** No further relevant information available.

## 13 Disposal Considerations

· **Waste treatment methods**

· **Recommendation:**

Contact manufacturer for recycling information.

Must not be disposed of together with household waste. Do not allow product to reach sewage system.

Observe all federal, state and local environmental regulations when disposing of this material.

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**Trade Name: FLUOSOLV FR-110 (Aerosol)**

- **Uncleaned packaging**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport Information

<ul style="list-style-type: none"> <li>· <b>UN-Number:</b></li> <li>· <b>DOT, ADR/ADN, IMDG, IATA</b></li> </ul>	<p style="text-align: right;">UN1950</p>
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name:</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR/ADN</b></li> <li>· <b>IMDG, IATA</b></li> </ul>	<p style="text-align: right;">Aerosols UN1950 AEROSOLS AEROSOLS</p>
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es):</b></li> <li>· <b>DOT</b></li> </ul>	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> <li>· <b>Class:</b></li> <li>· <b>Label:</b></li> </ul>	<p style="text-align: right;">2 Gases 2.1</p>
<ul style="list-style-type: none"> <li>· <b>ADR/ADN</b></li> </ul>	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> <li>· <b>Class:</b></li> <li>· <b>Label:</b></li> </ul>	<p style="text-align: right;">2 5F Gases 2.1</p>
<ul style="list-style-type: none"> <li>· <b>IMDG, IATA</b></li> </ul>	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> <li>· <b>Class:</b></li> <li>· <b>Label:</b></li> </ul>	<p style="text-align: right;">2 Gases 2.1</p>
<ul style="list-style-type: none"> <li>· <b>Packing group:</b></li> <li>· <b>DOT, ADR/ADN, IMDG, IATA</b></li> </ul>	<p style="text-align: right;">N/A Non-Regulated Material</p>
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> </ul>	<p style="text-align: right;">Not applicable.</p>
<ul style="list-style-type: none"> <li>· <b>Special precautions for user:</b></li> <li>· <b>Hazard identification number (Kemler code):</b> -</li> <li>· <b>EMS Number:</b></li> <li>· <b>Stowage Code</b></li> </ul>	<p style="text-align: right;">Warning: Gases F-D,S-U SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1</p>

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**Trade Name: FLUOSOLV FR-110 (Aerosol)**

<ul style="list-style-type: none"> <li>· <b>Segregation Code</b></li> </ul>	<p>litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters. SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.</p>
<ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:</b></li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> <li>· <b>DOT</b></li> <li>· <b>Quantity limitations:</b></li> </ul>	<p>On passenger aircraft/rail: 75 kg On cargo aircraft only: 150 kg</p>
<ul style="list-style-type: none"> <li>· <b>ADR/ADN</b></li> <li>· <b>Excepted quantities (EQ):</b></li> </ul>	<p>Code: E0 Not permitted as Excepted Quantity</p>
<ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ):</b></li> <li>· <b>Excepted quantities (EQ):</b></li> </ul>	<p>1L Code: E0 Not permitted as Excepted Quantity</p>
<ul style="list-style-type: none"> <li>· <b>UN "Model Regulation":</b></li> </ul>	UN 1950 AEROSOLS, 2.1

### 15 Regulatory Information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**

No further relevant information available.

· **SARA (Superfund Amendments and Reauthorization):**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

	PROPRIETARY AEROSOL FLUORINATED MIXTURE
811-97-2	1,1,1,2-Tetrafluoroethane (HFC-134a)

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**Trade Name: FLUOSOLV FR-110 (Aerosol)**

67-64-1	Acetone
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124-38-9	Carbon Dioxide
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· **California Proposition 65:**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic categories:**

· **EPA (Environmental Protection Agency):**

67-64-1	Acetone	I
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· **TLV (Threshold Limit Value established by ACGIH):**

67-64-1	Acetone	A4
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· **NIOSH-Ca (National Institute for Occupational Safety and Health):**

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**



· **Signal word:** Warning

· **Hazard statements:**

H319 Causes serious eye irritation.

· **Precautionary statements:**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P211 Do not spray on an open flame or other ignition source.

P251 Pressurized container: Do not pierce or burn, even after use.

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

· **National regulations:**

The product is not subject to be labelled according with the prevailing version of the regulations on hazardous substances.

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Contact:**

· **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety & Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Gases under Pressure - Compressed gas: Gases under pressure – Compressed gas

Flammable Liquids 2: Flammable liquids – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Eye Irritation 2B: Serious eye damage/eye irritation – Category 2B

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

· **\* Data compared to the previous version altered.**

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