

Safety Data Sheet (SDS)

OSHA HazCom 2012 Standard 29 CFR 1910.1200. Prepared to GHS Rev03.

Printing date 07/05/2014

Reviewed on 07/05/2014

1 Identification

- **Product identifier**
- **Trade name:** FluoSolv AP
- **Product number:** ngt-FS-AP
- **Product description** Azeotropic vapor-degreasing blend of fluorinated and chlorinated solvents
- **Application of the substance / the mixture** Defluxing and degreasing solvent for vapor-degreaser
- **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:**
 INFOTRAC day or night - 1-800-535-5053
 Outside of continental U.S. call collect 1-352-323-3500

2 Hazard(s) identification

- **Classification of the substance or mixture**



Harmful if swallowed.

Harmful if inhaled.

Harmful to aquatic life with long lasting effects.

- **Label elements**

- **GHS label elements**

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

- **Hazard pictograms**



GHS07

- **Signal word** Warning

- **Hazard-determining components of labeling:**

trans-dichloroethylene

1,1,1,3,3-pentafluorobutane

Propane, 1,1,1,2,3,3,3-heptafluoro-

- **Hazard statements**

Harmful if swallowed or if inhaled.

Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray.

Avoid release to the environment.

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IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Rinse mouth.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Call a POISON CENTER/doctor if you feel unwell.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:** NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme
- **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 0
Reactivity = 0

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



HEALTH 2 Health = 2
FIRE 0 Fire = 0
REACTIVITY 0 Reactivity = 0

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Azeotropic solvent mixture

- **Composition/information on ingredients:**

156-60-5	trans-dichloroethylene ⚠ Flam. Liq. 2, H225; ⚠ Acute Tox. 4, H332; Aquatic Chronic 3, H412	>50%
406-58-6	1,1,1,3,3-pentafluorobutane ⚠ Acute Tox. 4, H302; H227	<10%
431-89-0	Propane, 1,1,1,2,3,3,3-heptafluoro- ⚠ Press. Gas, H280; ⚠ Acute Tox. 4, H332	<10%
163702-07-6	Methyl nonafluorobutyl ether Aquatic Chronic 3, H412	<10%
163702-08-7	Methyl nonafluoroisobutyl ether Aquatic Chronic 3, H412	<10%
163702-05-4	Ethyl nonafluorobutyl ether Aquatic Chronic 3, H412	<10%
163702-06-5	Ethyl nonafluoroisobutyl ether Aquatic Chronic 3, H412	<10%
67-64-1	acetone ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336	<5%
138495-42-8	Decafluoro Pentane Aquatic Chronic 3, H412	<10%
67-63-0	Isopropyl alcohol ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319; STOT SE 3, H336	<5%

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Take affected persons out into the fresh air.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation:**

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

In case of unconsciousness, place patient securely on side position for transportation.

- **After skin contact:** Generally the product does not irritate the skin.

- **After eye contact:** Rinse opened eye for several minutes under running water.

- **After swallowing:** Immediately call a doctor.

- **Most important symptoms and effects, both acute and delayed** Breathing difficulty

- **Indication of any immediate medical attention and special treatment needed**

Do not administer preparations of the adrenalin-ephedrine-group.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Mouth respiratory protective device.

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.

Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (ie. sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

- **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

- **Precautions for safe handling**

Avoid contact with skin, eyes and clothing

Ensure good ventilation/exhaustion at the workplace.

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- **Information about protection against explosions and fires:**
Do not spray on a naked flame or any incandescent material.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Keep material dry.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **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:**

156-60-5 trans-dichloroethylene

PEL	Long-term value: 790 mg/m ³ , 200 ppm
REL	Long-term value: 790 mg/m ³ , 200 ppm
TLV	Long-term value: 793 mg/m ³ , 200 ppm

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: (1782) NIC-1187 mg/m ³ , (750) NIC-500 ppm Long-term value: (1188) NIC-594 mg/m ³ , (500) NIC-250 ppm BEI

67-63-0 Isopropyl alcohol

PEL	Long-term value: 980 mg/m ³ , 400 ppm
REL	Short-term value: 1225 mg/m ³ , 500 ppm Long-term value: 980 mg/m ³ , 400 ppm
TLV	Short-term value: 984 mg/m ³ , 400 ppm Long-term value: 492 mg/m ³ , 200 ppm BEI

· **Ingredients with biological limit values:**

67-64-1 acetone

BEI	50 mg/L urine end of shift Acetone (nonspecific)
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67-63-0 Isopropyl alcohol

BEI	40 mg/L urine end of shift at end of workweek Acetone (background, nonspecific)
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- **Additional information:** *The lists that were valid during the creation were used as basis.*
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
*Keep away from foodstuffs, beverages and feed.
 Wash hands before breaks and at the end of work.*
- **Breathing equipment:**
*Not necessary if room is well-ventilated.
 In special circumstances such as during an emergency reponse due to a spill or storage vessel maintenance use suitable respiratory protective device when high concentrations are present.*
- **Protection of hands:**
*The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
 Select glove material based on penetration times, rates of diffusion and degradation.*
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.
- **Eye protection:** *Goggles recommended during refilling.*

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Colorless
- **Odor:** *Weak, characteristic*
- **Odor threshold:** *Not determined.*
- **pH-value:** *not applicable*
- **Change in condition**

Melting point/Melting range:	--
Boiling point/Boiling range:	43 °C (109 °F)
- **Flash point:** *None.*
- **Flammability (solid, gaseous):** *Not applicable.*
- **Ignition temperature:** *440 °C (824 °F)*
- **Decomposition temperature:** *Not determined.*
- **Auto igniting:** *Product is not selfigniting.*
- **Danger of explosion:** *Product does not present an explosion hazard.*

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- | | |
|---|--|
| Explosion limits: | |
| Lower: | 9.7 Vol % |
| Upper: | 12.8 Vol % |
| Vapor pressure @ 20 °C (68 °F): | 350 hPa (263 mm Hg) |
| Density @ 20 °C (68 °F): | 10.51 lb/gal |
| Relative density | 1.27 |
| Vapour density | 3.6 (Air=1) heavier than air |
| Evaporation rate | 0.66 @ 25 deg C (ether=1) |
| Solubility in / Miscibility with Water: | Max water in solvent = 100 ppm |
| Partition coefficient (n-octanol/water): | 2.09 (log octanol/water) |
| Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | 0.45 cps @ 25 deg C |
| Solvent content: | |
| Organic solvents: | 100 % |
| VOC content: | 756 g/l (6.31 lb/gal) |
| Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** Stable under normal conditions
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Stable under normal use conditions
- **Conditions to avoid** Heat, flame and ignition sources.
- **Incompatible materials:**
Avoid contact with Alkali metals and Alkaline earth metals, powdered metal salts, strong bases
- **Hazardous decomposition products:**
Fluorinated hydrocarbons, hydrogen fluoride, carbon dioxide and carbon monoxide formed under fire

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:**
 - **LD/LC50 values that are relevant for classification:**
- | | | |
|--|------|-----------------|
| 156-60-5 trans-dichloroethylene | | |
| Oral | LD50 | 770 mg/kg (rat) |
- **Primary irritant effect:**
 - **on the skin:** No irritant effect.
 - **on the eye:** No irritating effect.
 - **Sensitization:** No sensitizing effects known.

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· **Additional toxicological information:**

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

Harmful

· **Carcinogenic categories**

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

67-63-0 Isopropyl alcohol

3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** Toxic to aquatic life

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

· **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:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**

· **DOT, ADR, ADN**

Non-Regulated Material

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· IMDG	Not Regulated
· UN proper shipping name · DOT, ADR, ADN	Non-Regulated Material
· Transport hazard class(es) · DOT, ADN · Class	Non-Regulated Material
· ADR 	
· Class · Label	Non-Regulated Material 9
· IMDG 	
· Class · Label	9 Miscellaneous dangerous substances and articles 9
· IATA 	
· Class · Label	9 Miscellaneous dangerous substances and articles 9
· Packing group · DOT · ADR, IMDG, IATA	N/A Non-Regulated Material III
· Environmental hazards: · Marine pollutant:	Yes Symbol (fish and tree)
· Special precautions for user · EMS Number: · Segregation groups	Not applicable. F-A,S-F Liquid halogenated hydrocarbons
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

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· **Transport/Additional information:**

· **IMDG**

· **Limited quantities (LQ)**

5L

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

9, III

15 Regulatory information

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

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

None of the ingredients is listed.

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

67-63-0 | Isopropyl alcohol

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

156-60-5 | trans-dichloroethylene

II

67-64-1 | acetone

I

· **TLV (Threshold Limit Value established by ACGIH)**

67-64-1 | acetone

A4

67-63-0 | Isopropyl alcohol

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

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

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· **Hazard pictograms**



GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**

trans-dichloroethylene

1,1,1,3,3-pentafluorobutane

Propane, 1,1,1,2,3,3,3-heptafluoro-

· **Hazard statements**

Harmful if swallowed or if inhaled.

Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray.

Avoid release to the environment.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Rinse mouth.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Call a POISON CENTER/doctor if you feel unwell.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

· **State Right to Know**

All ingredients are listed.

· **Other regulations, limitations and prohibitive regulations**

CERCLA Reportable Quantity: 1470 lbs, based on the percentage composition of this chemical in the product.:

trans-Dichloroethylene

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 07/05/2014 / 13

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

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HMS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Press. Gas: Gases under pressure: Liquefied gas

Flam. Liq. 2: Flammable liquids, Hazard Category 2

: Flammable liquids, Hazard Category 4

Acute Tox. 4: Acute toxicity, Hazard Category 4

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic Hazard, Category 3

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

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