

# SAFETY DATA SHEET



## DuPont™ Suva® 410A Refrigerant

Version 3.1

Revision Date 30.03.2015

Document no. 130000050990

This SDS adheres to the standards and regulatory requirements of Malaysia and may not meet the regulatory requirements in other countries.

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product name** : DuPont™ Suva® 410A Refrigerant  
: ASHRAE Refrigerant number designation: R-410A

**Other names** : Suva® 9100  
R-410A  
Suva® R-410A  
410A  
HFC 410A

#### Recommended use of the chemical and restriction on use

Recommended use : Refrigerant, For professional users only.

#### Manufacturer, importer, supplier

Company : Du Pont Malaysia Sdn Bhd  
Street address : Level 7, Menara CIMB, No 1, Jalan Stesen Sentral 2, Kuala Lumpur Sentral,  
50470 Kuala Lumpur  
Malaysia  
Telephone : +60 3 2859 0700  
Telefax : +60 3 2859-0840

**Emergency telephone number** : 1800-82-0055

### 2. HAZARDS IDENTIFICATION

#### Product hazard classification

Gases under pressure : Liquefied gas

Endpoints which are not classified, cannot be classified or are not applicable are not shown.

#### Label content

Pictogram :



Signal word : Warning

Hazardous warnings : Contains gas under pressure; may explode if heated.

Precautionary statements : Protect from sunlight. Store in a well-ventilated place.

#### Other hazards

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid


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evaporation of the liquid may cause frostbite.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Chemical nature** : Mixture

**Components**

Chemical Name	CAS-No.	Concentration
Pentafluoroethane (HFC-125)	354-33-6	50 %
Difluoromethane (HFC-32)	75-10-5	50 %

**4. FIRST AID MEASURES**

Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

**Inhalation** : Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

**Skin contact** : Take off contaminated clothing and shoes immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

**Eye contact** : Rinse immediately with plenty of water and seek medical advice.

**Ingestion** : Is not considered a potential route of exposure.

**Most important symptoms/effects, acute and delayed** : Anaesthetic effects, Light-headedness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness

**Protection of first-aiders** : If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Notes to physician** : Do not give adrenaline or similar drugs.

**5. FIREFIGHTING MEASURES**

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

**Specific hazards** : Pressure build-up.

**Special protective equipment for firefighters** : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.

**Specific extinguishing methods** : No information available.

**Further information** : Cool containers/tanks with water spray. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.  
Water runoff should be contained and neutralized prior to release.

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### 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures** : Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.
- Environmental precautions** : Should not be released into the environment.  
In accordance with local and national regulations.
- Methods and materials for containment and cleaning up** : Evaporates.  
Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect.

### 7. HANDLING AND STORAGE

#### Handling

Technical measures/Precautions : Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.

Precautions for safe handling : No special protective measures against fire required.

#### Storage

Suitable storage conditions : Keep container tightly closed in a dry and well-ventilated place. Store in original container.

Advice on common storage: No materials to be especially mentioned.

Storage period: > 10 yr

Storage temperature: < 52 °C

The product has an indefinite shelf life when stored properly.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control parameters

No information available.

**Engineering measures** : Ensure adequate ventilation, especially in confined areas.

**Biological occupational exposure limits** : No information available.

#### Personal protective equipment

Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Heat insulating gloves

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Eye protection	:	No information available.
Skin protection	:	No information available.
<b>Hygiene measures</b>	:	Handle in accordance with good industrial hygiene and safety practice.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance (Physical state, form, colour, etc.)**

Physical state	:	gaseous
Form	:	Liquefied gas
Colour	:	colourless

**Odour** : slight ether-like**Odour Threshold** : No information available.**pH** : neutral**Melting point/freezing point**

No information available.

**Initial boiling point and boiling range**

Boiling point/boiling range : -51.6 °C (1,013 hPa)

**Flash point** : does not flash**Evaporation rate** : > 1  
(CCL4=1.0)**Flammability (solid, gas)** : No information available.**Upper/lower flammability or explosive limits**Upper explosion limit : Not applicable  
Lower explosion limit : Not applicable**Vapour pressure** : 16,530 hPa (25 °C)

30,520 hPa (50 °C)

**Vapour density** : No information available.**Density**Density : 1.062 g/cm<sup>3</sup> (25 °C)  
(as liquid)0.0066 g/cm<sup>3</sup> (ca.26 °C) (1,013 hPa)

Specific gravity (Relative density) : 1.06 (25 °C)

**Solubility(ies)**

Water solubility : not determined

**Partition coefficient: n-octanol/water** : No information available.


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**Auto-ignition temperature**

Ignition temperature : no data available

**Decomposition temperature**

: No information available.

**Viscosity**

Viscosity, kinematic : No information available.

**Molecular weight**

: No information available.

**10. STABILITY AND REACTIVITY**
**Reactivity**

: Stable at normal ambient temperature and pressure.

**Chemical stability**

: Stable under recommended storage conditions.

**Possibility of hazardous reactions**

: No information available.

**Conditions to avoid**

: The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions.

**Materials to avoid**

: Alkali metals, Alkaline earth metals, Powdered metals, Powdered metal salts

**Hazardous decomposition products**

: Hazardous thermal decomposition products may include:

Hydrogen fluoride, Carbon oxides, Fluorocarbons, Carbonyl fluoride

**SECTION 11: TOXICOLOGICAL INFORMATION**
**Acute toxicity**
**Inhalation**

Pentafluoroethane (HFC-125) : LC50/4 h/Rat(gas): > 800000 ppm  
 Method: OECD Test Guideline 403  
 No Observed Adverse Effect Concentration/Dog(gas): 100000 ppm  
 Cardiac sensitization  
 Low Observed Adverse Effect Concentration (LOAEC)/Dog(gas): 75000 ppm  
 Cardiac sensitization

Difluoromethane (HFC-32) : LC50/4 h/Rat(gas): > 520000 ppm  
 Low Observed Adverse Effect Concentration (LOAEC)/Dog: > 350000 ppm  
 Cardiac sensitization  
 No Observed Adverse Effect Concentration/Dog: 350000 ppm  
 Cardiac sensitization

**Skin corrosion/irritation**

Difluoromethane (HFC-32) : Species: Not tested on animals  
 Result: No skin irritation  
 Classification: Not classified as irritant

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Not expected to cause skin irritation based on expert review of the properties of the substance.

**Serious eye damage/eye irritation**

Difluoromethane (HFC-32) : Species: Not tested on animals  
 Result: No eye irritation  
 Classification: Not classified as irritant  
 Not expected to cause eye irritation based on expert review of the properties of the substance.

**Respiratory or skin sensitisation**

Pentafluoroethane (HFC-125) : Species: human  
 Result: Does not cause respiratory sensitisation.  
 Classification: Does not cause respiratory sensitisation.

Difluoromethane (HFC-32) : Species: Not tested on animals  
 Result: Does not cause skin sensitisation.  
 Not expected to cause sensitization based on expert review of the properties of the substance.

There are no reports of human respiratory sensitization.

**Germ cell mutagenicity**

Pentafluoroethane (HFC-125) : Animal testing did not show any mutagenic effects. Evidence suggests this substance does not cause genetic damage in cultured mammalian cells. Did not cause genetic damage in cultured bacterial cells.

Difluoromethane (HFC-32) : Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

**Carcinogenicity**

Pentafluoroethane (HFC-125) : Not classifiable as a human carcinogen.  
 Overall weight of evidence indicates that the substance is not carcinogenic.

**Reproductive toxicity**

Pentafluoroethane (HFC-125) : Reproductive toxicity: No toxicity to reproduction  
 Animal testing showed no reproductive toxicity.  
 Teratogenicity: Animal testing showed no developmental toxicity.

Difluoromethane (HFC-32) : Reproductive toxicity: No toxicity to reproduction  
 Animal testing showed no reproductive toxicity.  
 Information given is based on data obtained from similar substances.  
 Teratogenicity: Animal testing showed no developmental toxicity.

**Specific Target Organ Toxicity**

Specific target organ toxicity - single exposure

Pentafluoroethane (HFC-125) : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Difluoromethane (HFC-32) : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure

Pentafluoroethane (HFC-125) : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Difluoromethane (HFC-32) : The substance or mixture is not classified as specific target organ

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toxicant, repeated exposure.

**Aspiration hazard**

- Pentafluoroethane (HFC-125) : No aspiration toxicity classification  
 Difluoromethane (HFC-32) : No aspiration toxicity classification

**Other**

- Pentafluoroethane (HFC-125) : Repeated dose toxicity:  
 Inhalation/Rat gas  
 NOAEL: > 50000,  
 No toxicologically significant effects were found.
- Difluoromethane (HFC-32) : Repeated dose toxicity:  
 Inhalation/Rat  
 No toxicologically significant effects were found.

**SECTION 12: ECOLOGICAL INFORMATION****Ecotoxicity effects**

## Acute and prolonged toxicity to fish

- Pentafluoroethane (HFC-125) : LC50/96 h/Oncorhynchus mykiss (rainbow trout): 450 mg/l  
 Information given is based on data obtained from similar substances.  
 Difluoromethane (HFC-32) : LC50/96 h/Fish: 1,507 mg/l

## Toxicity to aquatic plants

- Pentafluoroethane (HFC-125) : ErC50/96 h/Algae: 142 mg/l  
 Information given is based on data obtained from similar substances.  
 NOEC/72 h/Pseudokirchneriella subcapitata (green algae): 13.2 mg/l  
 Information given is based on data obtained from similar substances.  
 Difluoromethane (HFC-32) : EC50/96 h/Algae: 142 mg/l

## Acute toxicity to aquatic invertebrates

- Pentafluoroethane (HFC-125) : EC50/48 h/Daphnia magna (Water flea): 980 mg/l  
 Information given is based on data obtained from similar substances.  
 Difluoromethane (HFC-32) : EC50/48 h/Daphnia (water flea): 652 mg/l

## Chronic toxicity to fish

- Difluoromethane (HFC-32) : NOEC/30 d/Fish (unspecified species): 65.8 mg/l

**Persistence and degradability**

- Pentafluoroethane (HFC-125) : Result: Not rapidly biodegradable  
 Difluoromethane (HFC-32) : Exposure time: 28 d  
 Biodegradation: 5 %  
 Not readily biodegradable.

**Bioaccumulation**

No information available.

**Mobility in soil**

No information available.

**Other adverse effects**

No information available.

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### 13. DISPOSAL CONSIDERATIONS

**Waste disposal methods** : Can be used after re-conditioning. In accordance with local and national regulations.

**Contaminated packaging** : Empty pressure vessels should be returned to the supplier.  
Disposable containers: Dispose of in accordance with local regulations.

### SECTION 14: TRANSPORT INFORMATION

#### IMDG

UN number : 3163  
Proper shipping name : LIQUEFIED GAS, N.O.S.  
(Pentafluoroethane, Difluoromethane)  
Class : 2.2  
Marine pollutant : no

#### IATA

UN number : 3163  
Proper shipping name : LIQUEFIED GAS, N.O.S.  
(Pentafluoroethane, Difluoromethane)  
Class : 2.2  
Matters needing attention for transportation : Not applicable

### SECTION 15: REGULATORY INFORMATION

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.

### 16. OTHER INFORMATION

#### References

SDS Number: 130000050990

#### Revision Date/Version

Date of first preparation : 08.05.2009  
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Version : 3.1

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Significant change from previous version is denoted with a double bar.

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