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DuPont[™] SUVA[®] MP39 Refrigerant

Version 2.5

Revision Date 06/06/2012

Ref. 130000050993

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

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name Product Grade/Type	:	DuPont [™] SUVA [®] MP39 Refrigerant ASHRAE Refrigerant number designation: R-401A
MSDS Number	:	13000050993
Product Use	:	Refrigerant
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information Medical Emergency Transport Emergency	:	1-800-441-7515 (outside the U.S. 1-302-774-1000) 1-800-441-3637 (outside the U.S. 1-302-774-1139) CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview Misuse or intentional inhalation abuse may lead to death without warning. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite.

Potential Health Effects Skin	:	Contact with liquid or refrigerated gas can cause cold burns and frostbite.
Eyes	:	Contact with liquid or refrigerated gas can cause cold burns and frostbite.



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Inhalation	symptoms, due to cardi Other symptoms potent Anaesthetic effects, Lig incoordination, drowsin strange sensation in the fainting, dizziness or we	tially related to misuse or in ht-headedness, dizziness, ess, or unconsciousness, i e chest, heart thumping, ap eakness.	nhalation abuse are: confusion, irregular heartbeat with a
Carcinogenicity None of the components pres NTP, or OSHA, as a carcinog	ent in this material at concentr en.	ations equal to or greater t	han 0.1% are listed by IARC,
SECTION 3. COMPOSITION/INFO	ORMATION ON INGREDIENT	S	
Component		CAS-No.	Concentration
Chlorodifluoromethane (HCF	C-22)	75-45-6	53 %
1-Chloro-1,2,2,2-tetrafluoroet	hane (HCFC-124)	2837-89-0	34 %
1,1-Difluoroethane (HFC-152	a)	75-37-6	13 %
SECTION 4. FIRST AID MEASUR	RES		
Skin contact		aminated clothing immedia ing before re-use. Treat fo	ately. Consult a physician.



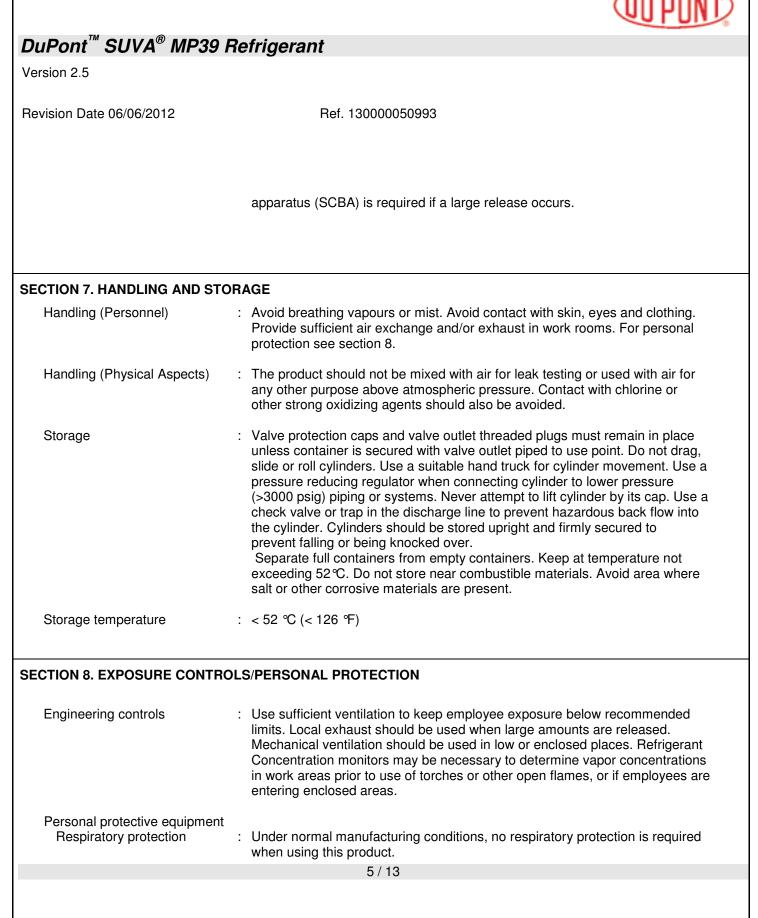
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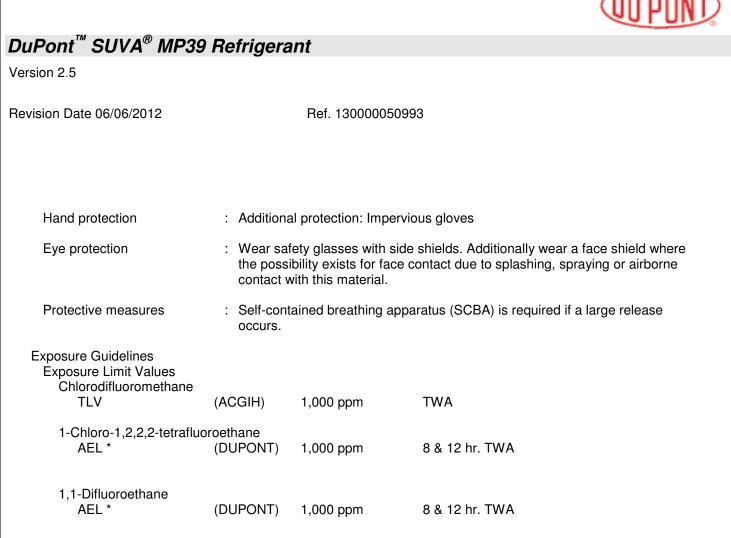
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Eye contact	: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.
Inhalation	: Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
Ingestion	: Is not considered a potential route of exposure.
General advice	: Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
	Development of the distribution of the distribution dealers in the development of the distribution of the
Notes to physician	: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.
CTION 5. FIREFIGHTING M	such as epinephrine, that may be used in situations of emergency life support should be used with special caution.
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CTION 5. FIREFIGHTING M Flammable Properties Flash point	such as epinephrine, that may be used in situations of emergency life support should be used with special caution. EASURES : does not flash
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CTION 5. FIREFIGHTING M Flammable Properties Flash point Ignition temperature Lower explosion limit	such as epinephrine, that may be used in situations of emergency life support should be used with special caution. EASURES : does not flash : 681 ℃ (1,258 ℉) : Method : None per ASTM E681
CTION 5. FIREFIGHTING M Flammable Properties Flash point Ignition temperature Lower explosion limit	such as epinephrine, that may be used in situations of emergency life support should be used with special caution. EASURES : does not flash : 681 ℃ (1,258 ℉) : Method : None per ASTM E681
CTION 5. FIREFIGHTING M Flammable Properties Flash point Ignition temperature Lower explosion limit	such as epinephrine, that may be used in situations of emergency life support should be used with special caution. EASURES : does not flash : 681 ℃ (1,258 ℉) : Method : None per ASTM E681

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Fire and Explosion Hazard	: Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Decomposition may occur. Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and colour of the torch flame. This flame effect will only occur in concentrations of product well above the recommended exposure limit. Therefore stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames. This substance is not flammable in air at temperatures up to 100 deg. C (212
	deg. F) at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. This substance can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing this substance and air, or this substance in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, this substance should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example this substance should NOT be mixed with air under pressure for leak testing or other purposes. Experimental data have also been reported which indicate combustibility of this substance in the presence of certain concentrations of chlorine.
Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Firefighting Instructions	: 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.
CTION 6. ACCIDENTAL RELEA	ASE MEASURES
	G MEASURES and HANDLING (PERSONNEL) sections before proceeding with clear L PROTECTIVE EQUIPMENT during clean-up.
Safeguards (Personnel)	: Evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapours might collect.
Accidental Release Measures	: Avoid open flames and high temperatures. Self-contained breathing

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* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES Form : Liquefied gas Color colourless Odor slight, ether-like pН neutral Boiling point : -32.9 °C (-27.2 °F) % Volatile : 100 % Vapour Pressure : 7,765 hPa at 25 ℃ (77 °F) : 1.19 at 25 ℃ (77 °F) Specific gravity Water solubility : 1.0 g/l at 25 ℃ (77 °F) at 1,013 hPa Vapour density : 3.3 at 25 °C (77 °F) and 1013 hPa (Air=1.0) Evaporation rate : >1 (CCL4=1.0) 6/13

DuPont[™] SUVA[®] MP39 Refrigerant Version 2.5 Revision Date 06/06/2012 Ref. 130000050993 SECTION 10. STABILITY AND REACTIVITY Stability : Stable at normal temperatures and storage conditions. Conditions to avoid : Avoid open flames and high temperatures. : Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts Incompatibility

- Hazardous decomposition : Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming products hydrochloric and hydrofluoric acids, and possibly carbonyl halides., These materials are toxic and irritating., Avoid contact with decomposition products
- : Polymerization will not occur. Hazardous reactions

SECTION 11. TOXICOLOGICAL INFORMATION

Chlorodifluoromethane (HCFC-22) Dermal	:	not applicable
Oral	:	not applicable
Inhalation 4 h LC50	:	220000 ppm , rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	50000 ppm , dog Cardiac sensitization
Skin irritation	:	No skin irritation, rabbit Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	No eye irritation, rabbit Not expected to cause eye irritation based on expert review of the properties of the substance.
Skin sensitization	:	Did not cause sensitization on laboratory animals., guinea pig
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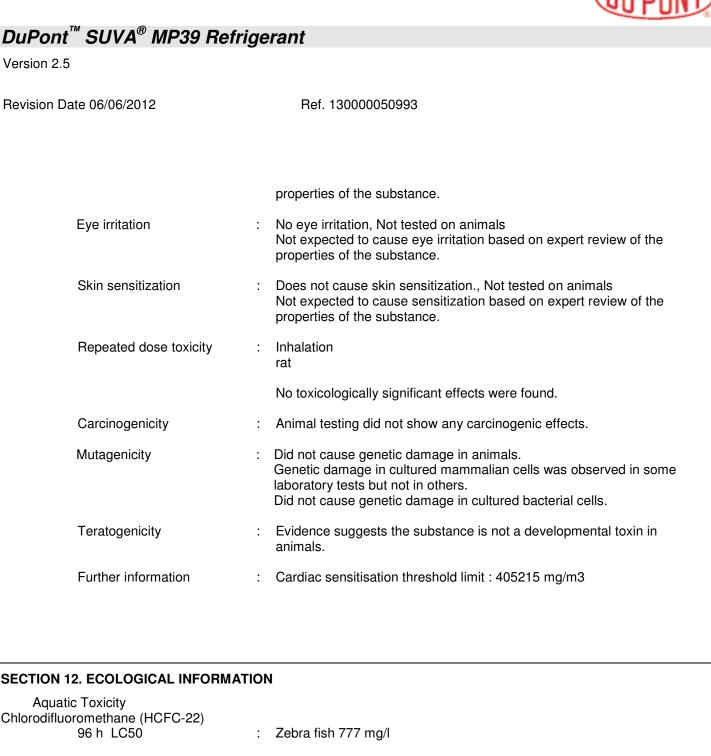




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	Not expected to cause sensitization based on expert review of the properties of the substance.
Repeated dose toxicity	: Inhalation mouse
	No toxicologically significant effects were found.
Carcinogenicity	 An increased incidence of tumours was observed in some laboratory animals but not in others. Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	 Did not cause genetic damage in animals. Did not cause genetic damage in cultured mammalian cells. Experiments showed mutagenic effects in cultured bacterial cells.
Reproductive toxicity	: Evidence suggests the substance is not a reproductive toxin in animals.
Teratogenicity	: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Further information	: Cardiac sensitisation threshold limit : 175000 mg/m3
-Chloro-1,2,2,2-tetrafluoroethane (HCF Dermal	C-124) : not applicable
Oral	: not applicable
Inhalation 4 h LC50	: > 230000 ppm , rat Anaesthetic effects Central nervous system effects
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	: 25000 ppm , dog Cardiac sensitization
Skin irritation	 No skin irritation, Not tested on animals Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	: No eye irritation, Not tested on animals Not expected to cause eye irritation based on expert review of the
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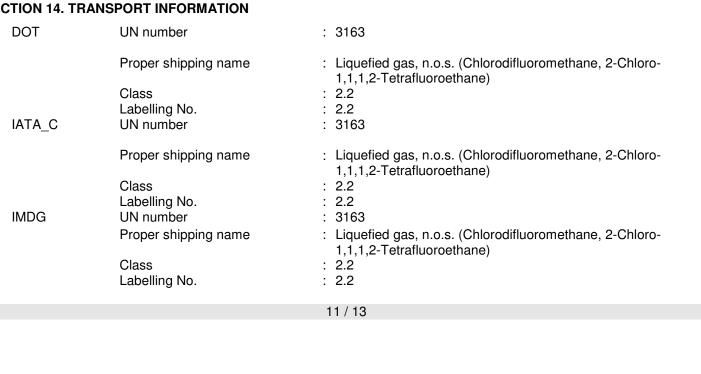


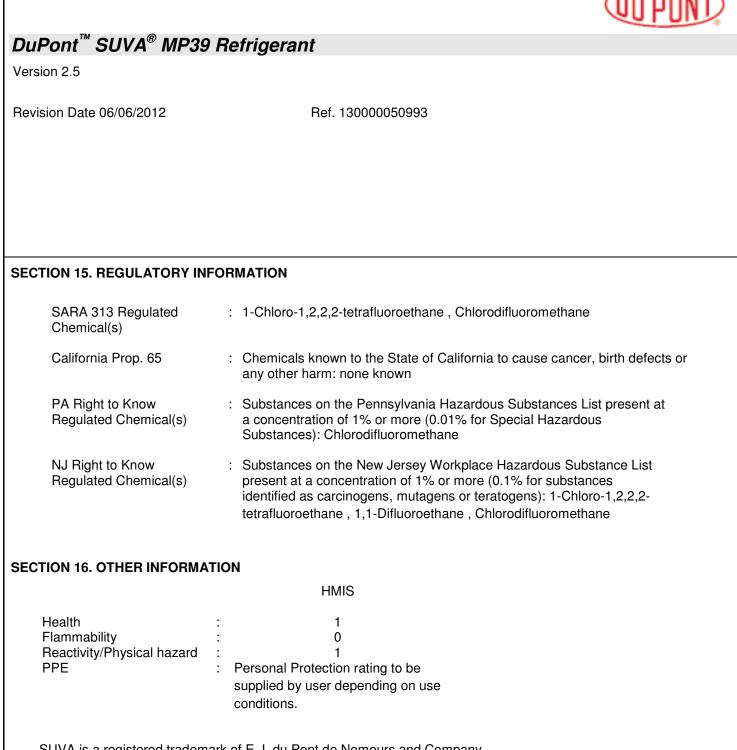
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Skin sensitization	 properties of the substance. Does not cause skin sensitization., Not tested on anim Not expected to cause sensitization based on expert respected to cause sensitization based on expert respected. 	
	properties of the substance. There are no reports of human respiratory sensitization	n.
Repeated dose toxicity	: Inhalation multiple species	
	No toxicologically significant effects were found.	
Carcinogenicity	: Animal testing did not show any carcinogenic effects.	
Mutagenicity	: Did not cause genetic damage in animals. Did not cause genetic damage in cultured mammalian Did not cause genetic damage in cultured bacterial cel	
Teratogenicity	: Animal testing showed no developmental toxicity.	
Further information	: Cardiac sensitisation threshold limit : 140000 mg/m3	
1,1-Difluoroethane (HFC-152a)		
Inhalation 4 h LC50	: > 437500 ppm , rat	
Inhalation 4 h No Observed Adverse Effect Concentration (NOAEC)	: 66400 ppm , rat	
Inhalation 4 h Low Observed Adverse Effect Concentration (LOAEC)	: 175200 ppm , rat Respiratory effects Anaesthetic effects Central nervous system depression Narcosis	
Inhalation Low Observed Adverse Effect Concentration (LOAEC) Inhalation No Observed Adverse Effect Concentration (NOAEC)	 150000 ppm , dog Cardiac sensitization 50000 ppm , dog Cardiac sensitization 	
Skin irritation	: No skin irritation, Not tested on animals Not expected to cause skin irritation based on expert r	eview of the
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Aquatic Toxicity Chlorodifluoromethane (HCFC-22)	
96 h LC50	: Zebra fish 777 mg/l
96 h EC50	: Algae 250 mg/l
48 h EC50	: Daphnia magna (Water flea) 433 mg/l
1,1-Difluoroethane (HFC-152a)	Fish (
96 h LC50	: Fish (unspecified species) 295.783 mg/l
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Material Safety Data Sheet DuPont[™] SUVA[®] MP39 Refrigerant Version 2.5 Revision Date 06/06/2012 Ref. 130000050993 96 h EC50 : Algae 47.755 mg/l (calculated) 48 h EC50 Daphnia 146.695 mg/l : **Environmental Fate** Chlorodifluoromethane (HCFC-22) Biodegradability According to the results of tests of biodegradability this product is not readily biodegradable. SECTION 13. DISPOSAL CONSIDERATIONS Waste Disposal : Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with applicable Federal, State/Provincial and Local Regulations. **Environmental Hazards** : Empty pressure vessels should be returned to the supplier. SECTION 14. TRANSPORT INFORMATION DOT UN number : 3163 Proper shipping name 1,1,1,2-Tetrafluoroethane) Class : 2.2 Labelling No. : 2.2 UN number IATA C : 3163 Proper shipping name





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For further information contact the local DuPont office or DuPont's nominated distributors.

The information provided in this 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,

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