

**MATERIAL SAFETY DATA SHEET**

Printed: 11/14/11

FORANE® 410A**PRODUCT IDENTIFICATION AND USE**

MANUFACTURER: ARKEMA CANADA INC.
1100 BURLOAK DRIVE
BURLINGTON, ONT.
L7L 6B2

EMERGENCY PHONE NUMBER: (800) 567-5726 (ARKEMA)
(613) 996-6666 (CANUTEC)

PRODUCT IDENTIFIER: FORANE® 410A

PRODUCT CODE: AP4003

PRODUCT USE: REFRIGERANT GAS

WHMIS CLASSIFICATION: A - COMPRESSED GAS.
D2B - TOXIC MATERIAL CAUSING OTHER TOXIC EFFECTS.

HAZARDOUS INGREDIENTS

	% WT	CAS #	TLV
PENTAFLUOROETHANE (HFC-125) LC50: >800,000 PPM (4-HR.- INHALATION-RATS)	30-60	354-33-6	1000 PPM (WEEL)
DIFLUOROMETHANE (HFC-32) LC50: >520,000 PPM (4-HR.- INHALATION-RATS)	30-60	75-10-5	1000 PPM (WEEL)

ADDITIONAL INGREDIENT INFORMATION (WHMIS NOT CONTROLLED):
NA

PHYSICAL DATA

PHYSICAL STATE: LIQUEFIED GAS.

ODOUR AND APPEARANCE: CLEAR, COLOURLESS LIQUID AND VAPOUR WITH A FAINT ETHERAL ODOUR.

ODOUR THRESHOLD: NE

SPECIFIC GRAVITY/DENSITY (G/ML): 1.06 @ 25°C

VAPOUR PRESSURE: 1475 KPA @ 21.1°C

VAPOUR DENSITY (AIR=1): 2.52

VOLATILITY/VOL(%): NE

SOLUBILITY IN H2O: NE

EVAPORATION RATE: NE

BOILING POINT: -52.8°C

FREEZING POINT: NE

PH: NE

LOG KOW: NE

SHIPPING INFORMATION

UN 3163, 2.2, LIQUEFIED GAS NOS. (PENTAFLUOROETHANE, DIFLUOROMETHANE)

FIRE AND EXPLOSION HAZARD

FLAMMABILITY: NA

CONDITIONS: NA.

MEANS OF EXTINCTION: USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

FLASHPOINT: NA - GAS

UPPER EXPLOSION LIMIT (% V): NONE

LOWER EXPLOSION LIMIT (%V): NONE

AUTO-IGNITION TEMPERATURE: NE

NA - NOT APPLICABLE

NE - NOT ESTABLISHED

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HAZARDOUS COMBUSTION PRODUCTS: HYDROGEN FLUORIDE, OXIDES OF CARBON, CARBON HALIDES
EXPLOSION DATA: NE
SENSITIVITY TO IMPACT: NO
SENSITIVITY TO STATIC DISCHARGE: NO

REACTIVITY

CHEMICAL STABILITY: STABLE
INCOMPATIBLE MATERIALS: ALKALINE MATERIALS, STRONG ACIDS, STRONG OXIDIZERS.
CONDITIONS OF REACTIVITY: NE
HAZARDOUS DECOMPOSITION PRODUCTS: MAY DECOMPOSE DURING CONTACT WITH FLAMES, HEATING ELEMENTS, OR IN COMBUSTION ENGINES RELEASING IRRITATING, TOXIC AND CORROSIVE GASES.

HEALTH HAZARD INFORMATION

ROUTE OF ENTRY
SKIN CONTACT: LIQUID CONTACT MAY CAUSE FROSTBITE.
SKIN ABSORPTION: NE
EYE: MAY CAUSE IRRITATION
INGESTION: NA
INHALATION: VAPOUR MAY BE IRRITATING TO THE MUCUS MEMBRANES AND RESPIRATORY TRACT.
ACUTE OVER EXPOSURE EFFECTS: NE
CHRONIC OVER EXPOSURE EFFECTS: MAY INCREASE SENSITIVITY OF THE HEART TO ADRENALINE, WHICH COULD RESULT IN IRREGULAR HEARTBEATS AND REDUCED HEART FUNCTION. VAPOUR IS HEAVIER THAN AIR AND CAN CAUSE SUFFOCATION BY REDUCING OXYGEN AVAILABLE FOR BREATHING.
SENSITIZATION: DOES NOT MEET WHMIS CRITERIA.
CARCINOGENICITY: DOES NOT MEET WHMIS CRITERIA.
TERATOGENICITY: DOES NOT MEET WHMIS CRITERIA.
MUTAGENICITY: DOES NOT MEET WHMIS CRITERIA.
REPRODUCTIVE TOXICITY: DOES NOT MEET WHMIS CRITERIA.

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: WEAR SAFETY GLASSES AND USE IMPERVIOUS GLOVES. WHERE AIRBORNE EXPOSURE IS LIKELY, WEAR A NIOSH APPROVED RESPIRATOR.
SPECIFIC ENGINEERING CONTROLS: LOCAL EXHAUST IS RECOMMENDED.
LEAK AND SPILL PROCEDURES: REMOVE OR EXTINGUISH IGNITION OR COMBUSTION SOURCES. KEEP UPWIND. EVACUATE ENCLOSED SPACES AND DISPERSE GAS WITH FLOOD-LEVEL FORCED-AIR VENTILATION. EXHAUST VAPOURS OUTSIDE.
WASTE DISPOSAL: CONSULT FEDERAL OR LOCAL AUTHORITIES FOR APPROVED DISPOSAL METHODS.
HANDLING PROCEDURES AND EQUIPMENT: AVOID BREATHING GAS. KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAMES. DO NOT DROP OR REFILL THIS CYLINDER. WASH BEFORE EATING, DRINKING, USING TOBACCO PRODUCTS OR REST ROOMS.
STORAGE REQUIREMENTS: KEEP IN A CLOSED, LABELED CONTAINER IN A VENTILATED AREA. DO NOT STORE CYLINDER IN DIRECT SUN OR EXPOSE IT TO HEAT ABOVE 49 °C.

NA - NOT APPLICABLE

NE - NOT ESTABLISHED

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FORANE® 410A**FIRST AID MEASURES**

EYE	FLUSH EYES WITH LARGE AMOUNT OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS OR PERSISTS.
SKIN	FLUSH EXPOSED SKIN WITH LUKEWARM WATER (NOT HOT) OR USE OTHER MEANS TO WARM SKIN SLOWLY. SEEK MEDICAL ATTENTION IF FROSTBITTEN OR IRRITATION OCCURS.
INGESTION	NA – GAS.
INHALATION	REMOVE PERSON TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, APPLY ARTIFICIAL RESPIRATION AND ADMINISTER OXYGEN IF NECESSARY. SEEK MEDICAL ATTENTION.

PREPARATION DATE

PREPARED BY:	TECHNICAL DEPARTMENT.
PHONE NUMBER OF PREPARER:	(800) 567-5726
DATE PREPARED (MM/DD/YY):	03/10/95
DATE REVISED (MM/DD/YY):	11/14/11

A SIGNIFICANT NEW ACTIVITY NOTICE (SNAC NOTICE) HAS BEEN ISSUED FOR DIFLUOROMETHANE (HFC-32). IT IS THE RESPONSIBILITY OF THE USERS OF THE SUBSTANCE TO BE AWARE OF AND COMPLY WITH THE SNAC NOTICE AND TO SUBMIT A SNAC NOTIFICATION TO ENVIRONMENT CANADA PRIOR TO THE COMMENCEMENT OF A SIGNIFICANT NEW ACTIVITY ASSOCIATED WITH THE SUBSTANCE.

MINIMUM CONTACT WITH THIS AND ALL CHEMICALS IS RECOMMENDED AS A GOOD GENERAL POLICY TO FOLLOW.

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