

Chem-Impex International Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191 USA

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191 USA

SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	42877
NAME:	2,5-Dimethoxy-2,5-dihydrofuran (<i>cis</i> - and <i>trans</i> - mixture)
SYNONYMS:	2,5-Dihydro-2,5-dimethoxyfuran (<i>cis</i> - and <i>trans</i> - mixture)
24 HOUR EMERGENCY TELEPHONE:	(800) 535-5053(USA) 352-323-3500 (INTERNATIONAL)
TO REQUEST AN MSDS:	(800) 869-9290
CUSTOMER SERVICE:	(630) 766-2112

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)
FLAMMABLE LIQUIDS (CATEGORY 3), H226

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

**GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS
PICTOGRAM**



SIGNAL WORD WARNING

HAZARD STATEMENT(S)

H226 FLAMMABLE LIQUID AND VAPOUR.

PRECAUTIONARY STATEMENT(S)

P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. NO SMOKING.
P233 KEEP CONTAINER TIGHTLY CLOSED.
P240 GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT.
P241 USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING EQUIPMENT.
P242 USE ONLY NON-SPARKING TOOLS.
P243 TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION.
P303 + P361 + P353 IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER.
P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.
P403 + P235 STORE IN A WELL-VENTILATED PLACE. KEEP COOL.
P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.

HAZARDS NOT OTHERWISE CLASSIFIED (HNO) OR NOT COVERED BY GHS NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: C₆H₁₀O₃
MW: 130.14
CAS-NO. 332-77-4
PURITY: ≥ 98% (GC)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
2,5-Dimethoxy-2,5-dihydrofuran (<i>cis</i>- and <i>trans</i>- mixture)		
	FLAM. LIQ. 3; ACUTE TOX. 4; EYE IRRIT. 2A; H226, H302,	≤ 100 %

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE	CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE. MOVE OUT OF DANGEROUS AREA.
IF INHALED	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
IN CASE OF SKIN CONTACT	WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	FLUSH EYES WITH WATER AS A PRECAUTION.
IF SWALLOWED	DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11.
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	SMALL (INCIPIENT) FIRES MUST BE EXTINGUISHED WITH ALCOHOL RESISTANT FOAM, DRY CHEMICAL POWDER OR CARBON DIOXIDE. LARGE AMOUNTS OF WATER ARE INEFFECTIVE. COOL CONTAINERS WITH LARGE AMOUNTS OF WATER.
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SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON OXIDES
ADVICE FOR FIREFIGHTERS	WEAR SELF CONTAINED BREATHING APPARATUS FOR FIREFIGHTING IF NECESSARY.
FURTHER INFORMATION	USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	AVOID BREATHING VAPORS, MIST OR GAS. REMOVE ALL SOURCES OF IGNITION. BEWARE OF VAPORS ACCUMULATING TO FORM EXPLOSIVE CONCENTRATIONS. VAPORS CAN ACCUMULATE IN LOW AREAS. FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	CONTAIN SPILLAGE, AND THEN COLLECT WITH NON-COMBUSTIBLE ABSORBENT MATERIAL, (E.G. SAND, EARTH, DIATOMACEOUS EARTH, VERMICULITE) AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL / NATIONAL REGULATIONS (SEE SECTION 13).
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	AVOID INHALATION OF VAPOUR OR MIST. KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING. TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. FOR PRECAUTIONS SEE SECTION 2.2.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	STORE IN COOL PLACE. KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.

Store at RT

SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2
NO OTHER SPECIFIC USES ARE STIPULATED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS**COMPONENTS WITH WORKPLACE CONTROL PARAMETERS**

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS**APPROPRIATE
ENGINEERING
CONTROLS**

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE
AND SAFETY PRACTICE. WASH HANDS BEFORE BREAKS AND
AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT**EYE/FACE
PROTECTION**

FACE SHIELD AND SAFETY GLASSES USE EQUIPMENT FOR
EYE PROTECTION TESTED AND APPROVED UNDER
APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH
(US) OR EN 166(EU).

**SKIN
PROTECTION**

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR
TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE
(WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID
SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF
CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH
APPLICABLE LAWS AND GOOD LABORATORY PRACTICES.
WASH AND DRY HANDS.

**BODY
PROTECTION**

IMPERVIOUS CLOTHING, FLAME RETARDANT ANTISTATIC
PROTECTIVE CLOTHING. THE TYPE OF PROTECTIVE
EQUIPMENT MUST BE SELECTED ACCORDING TO THE
CONCENTRATION AND AMOUNT OF THE DANGEROUS
SUBSTANCE AT THE SPECIFIC WORKPLACE.

**RESPIRATORY
PROTECTION**

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING
RESPIRATORS ARE APPROPRIATE USE A FULLFACE
RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR
TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A
BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS
THE SOLE MEANS OF PROTECTION, USE A FULL-FACE
SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND
COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE
GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

**CONTROL OF
ENVIRONMENTAL
EXPOSURE**

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO
SO. DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Colorless to slightly yellow clear liquid
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	160 - 162 °C
FLASH POINT	47 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	1.07
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION TEMPERATURE	NO DATA AVAILABLE
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATIONNO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	STABLE UNDER RECOMMENDED STORAGE CONDITIONS.
POSSIBILITY OF HAZARDOUS REACTIONS	NO DATA AVAILABLE
CONDITIONS TO AVOID	HEAT, FLAMES AND SPARKS.

**INCOMPATIBLE
MATERIALS**

ACIDS, STRONG OXIDIZING AGENTS

**HAZARDOUS
DECOMPOSITION
PRODUCTS**

HAZARDOUS DECOMPOSITION PRODUCTS FORMED
UNDER FIRE CONDITIONS. - CARBON OXIDES
OTHER DECOMPOSITION PRODUCTS - NO DATA
AVAILABLE
IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY

LD50 ORAL - RAT - 1,160 MG/KG
REMARKS: (EXTERNAL MSDS)

LC50 INHALATION - RAT - 4 H - 10.3 MG/L
REMARKS: (EXTERNAL MSDS)

DERMAL: NO DATA AVAILABLE

NO DATA AVAILABLE

**SKIN
CORROSION/IRRITATION**

SKIN RABBIT
RESULT: NO SKIN IRRITATION
REMARKS: REPEATED OR PROLONGED EXPOSURE
MAY CAUSE SKIN IRRITATION AND DERMATITIS, DUE
TO DEGREASING PROPERTIES OF THE PRODUCT.
(EXTERNAL MSDS)

**SERIOUS EYE
DAMAGE/EYE IRRITATION**

EYES RABBIT
RESULT: EYE IRRITATION
REMARKS: (EXTERNAL MSDS)

**RESPIRATORY OR SKIN
SENSITISATION**

NO DATA AVAILABLE

**GERM CELL
MUTAGENICITY**

AMES TEST
RESULT: NEGATIVE
(EXTERNAL MSDS)

CARCINOGENICITY

IARC:

NO INGREDIENT OF THIS PRODUCT PRESENT AT
LEVELS GREATER THAN OR EQUAL TO 0.1% IS
IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED
HUMAN CARCINOGEN BY IARC.

ACGIH:

NO INGREDIENT OF THIS PRODUCT PRESENT AT
LEVELS GREATER THAN OR EQUAL TO 0.1% IS
IDENTIFIED AS A CARCINOGEN OR POTENTIAL
CARCINOGEN BY ACGIH.

NTP:	NO INGREDIENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.
OSHA:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON OSHA S LIST OF REGULATED CARCINOGENS.
REPRODUCTIVE TOXICITY	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	ACUTE ORAL TOXICITY - NAUSEA, VOMITING, DIARRHEA ACUTE INHALATION TOXICITY - POSSIBLE DAMAGES:, MUCOSAL IRRITATIONS
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE
ADDITIONAL INFORMATION	RTECS: NOT AVAILABLE TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED. IF INHALED IN HIGH CONCENTRATIONS: NARCOSIS SYSTEMIC EFFECTS: IF INHALED HEADACHE, DROWSINESS IF SWALLOWED DIZZINESS FURTHER DATA: OTHER DANGEROUS PROPERTIES CAN NOT BE EXCLUDED. HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY	
TOXICITY TO FISH	LC50 - LEUCISCUS IDUS (GOLDEN ORFE) - 870 MG/L - 96 H (DIN 38412) REMARKS: (EXTERNAL MSDS)

TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES	EC50 - DAPHNIA MAGNA (WATER FLEA) - > 100 MG/L - 48 H (OECD TEST GUIDELINE 202)
TOXICITY TO BACTERIA	EC20 - ACTIVATED SLUDGE - > 1,000 MG/L - 0.5 H (OECD TEST GUIDELINE 209)

PERSISTENCE AND DEGRADABILITY

BIODEGRADABILITY	RESULT: 30 - 40 % - MODERATELY (PARTLY) ELIMINABLE (DOC REDUCTION 20-70 %). (OECD TEST GUIDELINE 302B)
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BIOACCUMULATIVE POTENTIAL	NO DATA AVAILABLE
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MOBILITY IN SOIL	NO DATA AVAILABLE
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RESULTS OF PBT AND VPVB ASSESSMENT	PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT CONDUCTED
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OTHER ADVERSE EFFECTS	DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED.
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SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT	BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE. OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY.
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CONTAMINATED PACKAGING	DISPOSE OF AS UNUSED PRODUCT.
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SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME:	FLAMMABLE LIQUIDS, N.O.S. (2,5-Dimethoxy-2,5-dihydrofuran (<i>cis</i> - and <i>trans</i> - mixture))
UN NUMBER:	1993
CLASS:	3
PACKING GROUP:	III
POISON INHALATION HAZARD:	NO

IMDG

PROPER SHIPPING NAME: FLAMMABLE LIQUIDS, N.O.S. (2,5-Dimethoxy-2,5-dihydrofuran (*cis*- and *trans*- mixture))
UN NUMBER: 1993
CLASS: 3
PACKING GROUP: III
EMS-NO: F-E, S-E

IATA

PROPER SHIPPING NAME: FLAMMABLE LIQUIDS, N.O.S. (2,5-Dimethoxy-2,5-dihydrofuran (*cis*- and *trans*- mixture))
UN NUMBER: 1993
CLASS: 3
PACKING GROUP: III

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS FIRE HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
2,5-Dimethoxy-2,5-dihydrofuran (<i>cis</i> - and <i>trans</i> - mixture)	332-77-4	

NEW JERSEY RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
2,5-Dimethoxy-2,5-dihydrofuran (<i>cis</i> - and <i>trans</i> - mixture)	332-77-4	

CALIFORNIA PROP. 65 COMPONENTS

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH, OR ANY OTHER REPRODUCTIVE DEFECTS.

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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VERSION: 3.2.

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