

编 码:

产品名称: 四氢呋喃



危 险

儿童不得接触

使用前请读标签

高度易燃液体和蒸气。造成严重眼刺激。可引起呼吸道刺激。

预防:

远离热源/火花/明火/热表面。禁止吸烟。保持容器密闭。容器和装载设备接地/等势联接。使用防爆的电气/通风/照明/……/设备。只能使用不产生火花的工具。采取防止静电放电的措施。避免吸入粉尘/烟/气体/烟雾/蒸气/喷雾。作业后彻底清洗……只能在室外或通风良好之处使用。戴防护手套/穿防护服/戴防护眼罩/戴防护面具。

应急:

如皮肤(或头发)沾染: 立即脱掉所有沾染的衣服。用水清洗皮肤/淋浴。如误吸入: 将受害人转移到空气新鲜处, 保持呼吸舒适体位。如感觉不适, 呼叫解毒中心或医生/……。如进入眼睛: 用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出, 取出隐形眼镜。继续冲洗。如仍觉眼刺激: 求医/就诊。火灾时: 使用泡沫, 干粉, 二氧化碳或雾状水灭火。

贮存:

存放在通风良好的地方。保持低温。保持容器密闭。存放处须加锁。

处置:

处置内装物/容器……。

CODE:

PRODUCT NAME: Tetrahydrofuran



Danger

Keep out of the reach of children.

Read label before use.

Highly flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/ vapors/spray. Wash ... thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use foam, dry chemical powder, carbon dioxide, water spray to extinguish.

Storage

Store in well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/container to...

化学品安全数据单

一、标识

全球统一制度产品标识符：四氢呋喃/Tetrahydrofuran。

其它标识办法：/

化学品使用建议和使用限制：/

供货商的详细情况：/

紧急电话号码：/

二、危险标识

物质或混合物的分类：

易燃液体类别 2，眼损伤/眼刺激类别 2A，特定目标器官毒性（单次接触）类别 3-呼吸刺激。

全球统一制度标签要素，包括防范说明：



信号词：危险。

危险说明：高度易燃液体和蒸气。造成严重眼刺激。可引起呼吸道刺激。

防范说明：

预防：远离热源/火花/明火/热表面。禁止吸烟。保持容器密闭。容器和装载设备接地/等势联接。使用防爆的电气/通风/照明/……/设备。只能使用不产生火花的工具。采取防止静电放电的措施。避免吸入粉尘/烟/气体/烟雾/蒸气/喷雾。作业后彻底清洗……只能在室外或通风良好之处使用。戴防护手套/穿防护服/戴防护眼罩/戴防护面具。

应急：如皮肤（或头发）沾染：立即脱掉所有沾染的衣服。用水清洗皮肤/淋浴。如误吸入：将受害人转移到空气新鲜处，保持呼吸舒适体位。如感觉不适，呼叫解毒中心或医生/……。如进入眼睛：用水小心冲洗几分钟。如戴隐形眼镜并可方便地取出，取出隐形眼镜。继续冲洗。如仍觉眼刺激：求医/就诊。火灾时：使用泡沫，干粉，二氧化碳或雾状水灭火。

贮存：存放在通风良好的地方。保持低温。保持容器密闭。存放处须加锁。

处置：处置内装物/容器……。

不导致分类的其他危险：/

三、组成/成分信息

化学名称	化学文摘社登记号码（CAS No.）	含量%
四氢呋喃	109-99-9	99.9

四、急救措施

必要的急救措施

吸入：如果吸入，请将患者移到新鲜空气处。如果停止了呼吸，给予人工呼吸。求医。

皮肤接触：用肥皂和大量的水冲洗。求医。

眼睛接触：用大量水彻底冲洗至少 15 分钟。就医。

食入：切勿给失去知觉者从嘴里喂食任何东西。用水漱口。就医。

最重要的急性和延迟症状/效应：/

必要时注明立即就医及所需的特殊治疗：/

五、消防措施

适当的灭火介质：泡沫，干粉，二氧化碳。喷水或水雾-仅适于大火。

化学品产生的具体危险：液体和蒸气高度易燃。受热、接触明火或氧化剂，有严重火灾危害。蒸气能飘散相当长距离接触到点火源处。受热能引起膨胀或分解，导致容器急剧破裂。燃烧时能产生有毒的一氧化碳(CO)气体。

消防人员的特殊防护行为：佩戴呼吸设备及防护手套。用各种方法防止溢出物进入阴沟或水道。在安全的条件下，关掉电器，直至火灾隐患被解除为止。喷水雾以便控制火势并冷却相邻区域。避免直接喷水到液池中。禁止靠近认为是热的容器。请从有防护的位置喷水以便冷却接触火场中的容器。在安全的条件下，把容器从火场中移走。

六、意外释放措施

人身防范、保护设备和应急程序：移除所有点火源。立即清理所有泄漏物。防止吸入蒸气，防止接触皮肤或眼睛。采用防护设备以控制人员接触。

环境防范措施：在安全的前提下，阻止泄漏。

抑制和清理的方法和材料：可以使用喷水或水雾来驱散/吸收蒸气。用沙子、土或蛭石来吸收泄漏物。只能使用不产生火花的铲子和防爆设备。收集可回收的产品于贴有标签的容器中，以便回收利用。用沙子、土或蛭石来吸收残留物。收集固体残留物，密封于贴有标签的桶中，以便废弃处理。冲洗沾染区域，防止废水排入阴沟。

七、搬运与储存

安全搬运的防范措施：避免所有的个体接触，包括吸入。当有接触危险时，穿戴防护服。在通风良好的区域使用本物质。防止本品在坑凹处汇集。在未作空气检测之前，不得进入封闭空间内。禁止吸烟、外露灯光、受热或点火源。防止产生静电。禁止用塑料桶。所有管路和设备都应接地。操作处置时，使用不产生火花的工具。防止接触禁忌物。

安全存储的条件，包括任何不相容性：储存于原装容器中，置于许可的易燃液体储存场所。禁止存放在凹坑、洼地、地下室或者气体能够汇聚的场所。禁止吸烟、外露灯光、受热或接触点火源。保持容器密封。远离禁忌物质，在凉爽、干燥、通风良好的场所储存。防止容器受到物理损伤，定期检查泄漏和漏洞。遵从制造商的储存和操作处置建议。

八、接触控制/人身保护

控制参数：

职业接触限值

来源	成分	物质名称	TWA	STEL
工作场所有害因素职业接触限值	四氢呋喃	Tetrahydrofuran	300 mg/m ³	

紧急限制

成分	原 IDLH	修订 IDLH
四氢呋喃	20,000 [LEL] ppm	2,000 [LEL] ppm

适当的工程控制：对易燃液体和易燃气体，可能需要局部通风系统或工艺围栏通风系统。通风设备应防爆。

个人防护措施

防护眼罩/面具：带侧边的安全护目镜。化学护目镜。隐形眼镜可能会造成一种特殊危害；软的隐形眼镜可能会吸收和富集刺激物。

皮肤防护：戴化学防护手套(如聚氯乙烯 PVC)。穿安全鞋或安全靴(如橡胶材料)。防渗透的衣服，阻燃防静电防护服,防护设备的类型必须根据特定工作场所中的危险物的浓度和含量来选择。

呼吸系统防护：呼吸器种类和型号的选择取决于呼吸区域污染物的等级以及污染物的化学性质。

高温危险： /

九、物理及化学性质

外观（物理状态、颜色等）	无色透明液体。
气味	/
气味阈值	/
pH 值	/
熔点/凝固点	-108.5 °C
初始沸点和沸腾范围	66 °C
闪点	<13.0 °C
蒸发速率	8.0 BuAc=1
易燃性（固态、气态）	高度易燃
上下易燃极限或爆炸极限	1.8 ~ 11.8 %
蒸气压力(kPa)	19.1 @ 20 C
蒸气密度(空气 = 1)	2.5
相对密度(水 = 1)	0.891 @ 20 C
可溶性	混溶。
分配系数：n-辛醇/水	/
自动点火温度	321 °C
分解温度	/
粘度	/

十、稳定及反应性

反应性： /

化学稳定性：物质是稳定的。

危险反应的可能性：不会发生危害性的聚合反应。

应避免的条件：高温、热源、点火源等。

不相容材料：强氧化剂。

危险分解产物：碳氧化物，有机物燃烧产生的其它类型的热解产物。

十一、毒理学信息

暴露途径：吸入、经口、皮肤、眼睛。

有关物理、化学和毒理学特点的症状： /

急性毒性效应：

吸入：在正常加工处理过程中，吸入本物质产生的蒸气或气溶胶(雾、烟)，可能会损害个体健康。

食入：意外食入该物质可对个体健康造成伤害。

皮肤：皮肤接触本品可损害健康，吸收后可导致全身发生反应。

眼睛：本物质可能会对一些人的眼睛产生刺激，并在滴入后 24 小时或更长时间内对眼睛造成损害。

慢性毒性或长期毒性效应：长期接触呼吸道刺激物可能导致气管疾病，包括呼吸困难和相关全身性疾病。

毒性的数值度量（如急性毒性估计值）： dermal (rat) LD50: >2000 mg/kg, Inhalation (rat) LC50: >14.7 mg/16 h, Inhalation (rat) LC50: 2100 ppm/3h, Inhalation (rat) LC50: 21000 ppm/3H, Inhalation (rat) LC50: 72 mg/L/2H, Oral (rat) LD50: <891 mg/kg.

十二、生态信息

毒性： /

持久性及降解性： 水/土壤：低。空气：低。

生物累积潜力： 低。

在土壤中的流动性： 低。

其它有害效应： /

十三、处置考虑

处置方法： 尽可能回收本物质。如果不能确定有合适的处理或废弃处置设备，联系制造商有关回收方法，或联系当地或地区的废物管理部门有关废弃方法。按如下方法废弃处理：在有许可证的填埋处进行掩埋或在有许可证的焚化场进行焚化（与适当的可燃物质混合后）。对空的容器进行去污处理。遵守所有的标注规定，直至容器被清洗或销毁为止。

十四、运输信息

联合国编号： 2056。

联合国运输名称： 四氢呋喃。

运输危险种类： 3。

包装类别： II。

环境危害： /

使用者的特殊防范措施： /

十五、管理信息

国内化学品安全法规：

本化学品安全技术说明书遵照了以下相关国家标准：GB16483-2008, GB13690-2009, GB18218-2009, GB15258-2009, GB6944-2012, GB190-2009, GB191-2009, GB12268-2008, GA57-1993, GB/T 15098-2008, GBZ 2-2007以及相关法规：《危险货物运输管理规则》、《危险化学品安全管理条例》。

十六、其它信息

参考文献	联合国《关于危险货物运输的建议书·规章范本》 联合国《全球化学品统一分类和标签制度》
制表日期	2015年02月15日

注 1：当产品为含有两种以上危险物质的混合物时，应依据其混合后的危险性，制作安全数据单。

注 2：制造商/供应商应根据实际情况确保安全数据单所含信息的正确性，并适时更新。

注 3：如由于产品特性而不存在或不可得某些信息时（如固体不存在沸点），应在表格中以“/”标识。

Chemical Safety Data Sheet

SECTION 1 IDENTIFICATION

GHS Product identifier: Tetrahydrofuran.

Other means of identification: /

Recommended use of the chemical and restrictions on use: /

Supplier's details: /

Emergency phone number: /

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable Liquids Category 2.

Eye Damage/Irritation Category 2A.

Specific Target Organ Toxicity (Single Exposure) Category 3 (Respiratory Tract).

GHS Label elements, including precautionary statements



Signal word: Danger

Hazard statement(s): Highly flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation.

Precautionary statement(s):

Prevention: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/ vapors/spray. Wash ... thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use foam, dry chemical powder, carbon dioxide, water spray to extinguish.

Storage: Store in well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/container to...

Other hazards which do not result in classification: /

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Tetrahydrofuran	109-99-9	99.9

SECTION 4 FIRST AID MEASURES

Description of necessary first aid measures

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: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: 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: /

Indication of immediate medical attention and special treatment needed: /

SECTION 5 FIREFIGHTING MEASURES

Suitable extinguishing media: Foam. Dry chemical powder. Carbon dioxide. Water spray or fog - Large fires only.

Special hazards arising from the chemical: Liquid and vapour are highly flammable. Severe fire hazard when exposed to heat, flame and/or oxidisers. Vapour may travel a considerable distance to source of ignition. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO).

Special protective actions for fire-fighters: Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. If safe, switch off electrical equipment until vapour fire hazard removed. Use water delivered as a fine spray to control fire and cool adjacent area. Avoid spraying water onto liquid pools. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes.

Environmental precautions: Increase ventilation. Stop leak if safe to do so.

Methods and materials for containment and cleaning up: Water spray or fog may be used to disperse / absorb vapour. Contain spill with sand, earth or vermiculite. Use only spark-free shovels and explosion proof equipment. Collect recoverable product into labelled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of overexposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid generation of static electricity. DO NOT use plastic buckets. Earth all lines and equipment. Use spark-free tools when handling. Avoid contact with incompatible materials.

Conditions for safe storage, including any incompatibilities: Store in original containers in approved flame-proof area. No smoking, naked lights, heat or ignition sources. DO NOT store in pits, depressions, basements or areas where vapours may be trapped. Keep containers securely sealed. Store away from incompatible materials in a cool, dry well-ventilated area. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within

this MSDS.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Occupational Exposure Limits (OEL)

Source	Ingredient	Material name	TWA	STEL
China Occupational Exposure Limits for Hazardous Agents in the Workplace	tetrahydrofuran	Tetrahydrofuran	300 mg/m ³	Not Available

Emergency Limits

Ingredient	Original IDLH	Revised IDLH
tetrahydrofuran	20,000 [LEL] ppm	2,000 [LEL] ppm

Appropriate engineering controls: For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Personal protective equipment

Eye/face protection: Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection: Wear chemical protective gloves, eg. PVC. Wear safety footwear or safety gumboots, eg. Rubber. 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: Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

Thermal hazards: /

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless clear liquid
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	-108.5 °C
Initial boiling point and boiling range	66 °C
Flash point	<13.0 °C
Evaporation rate	8.0 BuAc=1
Flammability (solid, gas)	HIGHLY FLAMMABLE.
Upper/lower flammability or explosive limits	1.8 ~ 11.8 %
Vapour pressure	19.1 @ 20 C
Vapour density	2.5
Relative density	0.891 @ 20 C
Water solubility	Miscible
Partition coefficient: octanol/water	/
Autoignition temperature	321 °C
Decomposition temperature	/
Viscosity	/

SECTION 10 STABILITY AND REACTIVITY

Reactivity: /

Chemical stability: Product is considered stable.

Possibility of hazardous reactions: Hazardous polymerisation will not occur.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Carbon dioxide, other pyrolysis products typical of burning organic materia

SECTION 11 TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: Inhaled, Ingestion, skin, eyes.

Symptoms related to the physical, chemical and toxicological characteristics: /

Acute health effects

Inhalation: Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Ingestion: Accidental ingestion of the material may be damaging to the health of the individual.

Skin: Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

Eyes: The material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s).

Chronic health effects: Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Numerical measures of toxicity (such as acute toxicity estimates): dermal (rat) LD50: >2000 mg/kg, Inhalation (rat) LC50: >14.7 mg/16 h, Inhalation (rat) LC50: 2100 ppm/3h, Inhalation (rat) LC50: 21000 ppm/3H, Inhalation (rat) LC50: 72 mg/L/2H, Oral (rat) LD50: <891 mg/kg.

SECTION 12 ECOLOGICAL INFORMATION

Toxicity: /

Persistence and degradability: Water/Soil: LOW. Air: LOW.

Bioaccumulative potential: LOW.

Mobility in soil: LOW.

Other adverse effects: /

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal methods: Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material). Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

SECTION 14 TRANSPORT INFORMATION

UN number: 2056.
UN proper shipping name: TETRAHYDROFURAN.
Transport hazard class(es): 3.
Packaging group: II
Environmental hazards: /
Special precautions for user: /

SECTION 15 REGULATORY INFORMATION

Regulations: This safety data sheet is in compliance with the following national standards: GB 16483-2008, GB 13690-2009, GB/T 15098-2008, GB 18218-2009, GB 15258-2009, GB 6944-2012, GB 190-2009, GB 191-2009, GB 12268-2008, GA 57-1993, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation [Published by the Ministry of Railways, 2008], Dangerous Chemicals Safety Administrative Regulation [Published by the State Council, 2011].

SECTION 16 OTHER INFORMATION

References	“Model Regulations on the Transport of Dangerous Goods” “The Globally Harmonized System of Classification and Labelling of Chemicals”
Form Date	15-February-2015

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information (such as boiling point does not exist for the solid) in the table with "/" logo.



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Tetrahydrofuran

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