Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

1 Identification

· **Product identifier**

· **Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether**
· **Other means of identification**

· **Article number:** 46054
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

· **Information department:** Product safety department
· **Emergency telephone number:**
During normal opening times: +1 (734) 971-3335
US/CANADA: 800-424-9300
Outside US/CANADA: 703-741-5970

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2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

Flammable liquids 2	H225 Highly flammable liquid and vapor.


GHS07

Eye irritation 2A	H319 Causes serious eye irritation.
Specific target organ toxicity (single exposure) 3	H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**


GHS02 GHS07

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 1)

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Methyl acetate

· **Hazard statements**
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

· **Precautionary statements**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240	Ground / bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center/doctor if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use CO2, powder or water spray to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Information pertaining to particular dangers for man and environment:**
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable
· **Classification according to (d)(1)(ii) of § 1910.1200**
The SDS issuer does not object to the classifications provided by importers or manufacturers of precursor products.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 2)

· **Hazards not otherwise classified**
There are no adverse physical or health effects known that are not covered by the hazard classes of the Hazard Communications Standard.

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 79-20-9 RTECS: AI9100000	Methyl acetate	99.0%

· **Other ingredients**		
3117672-88-2	9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether	1.0%

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4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Immediately rinse with water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

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5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 3)

· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
79-20-9	Methyl acetate	250 ppm

· **PAC-2:**		
79-20-9	Methyl acetate	1700 ppm

· **PAC-3:**		
79-20-9	Methyl acetate	10000 ppm

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:** Store in accordance with information listed on the product insert.
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
79-20-9 Methyl acetate	
PEL	Long-term value: 610 mg/m³, 200 ppm
REL	Short-term value: 760 mg/m³, 250 ppm Long-term value: 610 mg/m³, 200 ppm
TLV	Short-term value: 757 mg/m³, 250 ppm Long-term value: 606 mg/m³, 200 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 4)

Avoid contact with the eyes and skin.

· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Physical state**	Liquid
· **Color:**	According to product specification
· **Odor:**	Characteristic
· **Structural Formula**	C H3 - C O O - C H3
· **Molecular Weight**	78.08 g/mol
· **Storage Buffer**	
· **Odor threshold:**	Not determined
· **Formulation**	
· **Melting point/Melting range:**	-98 °C (-144.4 °F)
· **Boiling point/Boiling range:**	Undetermined
· **Flammability:**	Highly flammable.
· **Explosion limits:**	
· **Lower:**	3.1 Vol %
· **Upper:**	16 Vol %
· **Flash point:**	-13 °C (8.6 °F)
· **Auto igniting:**	454 °C (849.2 °F)
· **Decomposition temperature:**	Not determined
· **pH-value:**	Not determined

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 5)

· **Viscosity:**	
· **Kinematic:**	Not determined
· **SOLUBILITY**	
· **Dynamic:**	Not determined
· **Solubility in / Miscibility with**	
· **Water at 20 °C (68 °F):**	330 g/l
· **Partition coefficient (n-octanol/water):**	Not determined
· **Vapor pressure at 20 °C (68 °F):**	220 hPa (165 mm Hg)
· **Vapor pressure at 50 °C (122 °F):**	800 hPa (600 mm Hg)
· **Density at 20 °C (68 °F):**	0.93 g/cm³ (7.76085 lbs/gal)
· **Relative density**	Not determined
· **Bulk density:**	1 kg/m³
· **Vapor density**	Not determined
· **Particle characteristics**	Not applicable
· **Other information**	
· **Appearance:**	
· **Form:**	Fluid
· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Solvent content:**	
· **Organic solvents:**	99.0 %
· **VOC content:**	0.00 % 0.0 g/l / 0.00 lb/gal
· **Change in condition**	
· **Evaporation rate**	Not determined

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

79-20-9 Methyl acetate

Oral	LD50	6,482 mg/kg (rat)
Inhalative	LC50/4 h	>49.2 mg/l (rabbit)

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 6)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant
· **Interactive effects** No interactive effects between components are known.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

· **Alternative sources for toxicological information**
No non-standard sources for toxicological information where used.

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12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable
· **Other adverse effects**
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 7)

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14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN1231
· **UN proper shipping name**	
· **DOT, IATA**	Methyl acetate solution
· **IMDG**	METHYL ACETATE solution
· **Transport hazard class(es)**	
· **DOT**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IMDG, IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IATA**	
· **Remarks:**	When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
· **Special precautions for user**	Warning: Flammable liquids
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-D

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 8)

· **Stowage Category**	B
· **UN "Model Regulation":**	UN 1231 METHYL ACETATE SOLUTION, 3, II

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

79-20-9	Methyl acetate	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of previous version** 10/27/2026
· **Date of preparation** 10/27/2026
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Date of issue: 10/27/2026 Revision date 10/27/2026

Trade name: 9(R)-Hexahydrocannabinol tert-butyldimethylsilyl ether

(Contd. from page 9)

HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flammable liquids 2: Flammable liquids – Category 2
Eye irritation 2A: Serious eye damage/eye irritation – Category 2A
Specific target organ toxicity (single exposure) 3: Specific target organ toxicity (single exposure) – Category 3

· *** Data compared to the previous version altered.**