

1 Identification

- **Product identifier**
- **Trade name:** QCO-123
- **Application of the substance / the mixture** For Laboratory Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 NSI Lab Solutions
 7212 ACC Blvd.,
 Raleigh, NC 27617
 USA
- **Information department:** Product safety department
- **Emergency telephone number:** During normal opening times: +1 (919) 789-3000

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 2 H225 Highly flammable liquid and vapor.



GHS07

Acute Toxicity - Dermal 4 H312 Harmful in contact with skin.
 Skin Irritation 2 H315 Causes skin irritation.

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



GHS02



GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 tert-butyl methyl ether
- **Hazard statements**
 Highly flammable liquid and vapor.
 Harmful in contact with skin.
 Causes skin irritation.
- **Precautionary statements**
 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.
 Wash thoroughly after handling.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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Call a poison center/doctor if you feel unwell.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

In case of fire: Use CO₂, powder or water spray to extinguish.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

1634-04-4	tert-butyl methyl ether	99–100%
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· **Non-hazardous components**

93-76-5	2,4,5-T (ISO)	0.0045–0.0135%
14143-55-6	Picloram methyl ester	0.0044–0.0135%
50594-66-6	5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoic acid	0.0044–0.0135%
94-82-6	2,4-DB (ISO)	0.0042–0.0127%
4841-20-7	Silvex methyl ester	0.004–0.012%
51-36-5	3,5-dichlorobenzoic acid	0.0037–0.0113%
1918-00-9	dicamba(ISO)	0.0027–0.0082%
94-75-7	2,4-D (ISO)	0.0025–0.0077%
25057-89-0	bentazone (ISO)	0.0018–0.0072%
120-36-5	dichlorprop (ISO)	0.0031–0.0067%
709-98-8	propanil (ISO)	0.0003–0.0061%
133-90-4	chloramfen	0.0017–0.0052%
75-99-0	2,2-dichloropropionic acid	0.0013–0.0041%
88-85-7	dinoseb	0.0009–0.0039%
87-86-5	pentachlorophenol	0.001–0.0032%

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:** Rinse opened eye for several minutes under running water.

- **After swallowing:** If symptoms persist consult doctor.

- **Information for 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.

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.

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 item 13.

Ensure adequate ventilation.

- **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.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

1634-04-4	tert-butyl methyl ether	50 ppm
93-76-5	2,4,5-T (ISO)	30 mg/m ³
94-75-7	2,4-D (ISO)	30 mg/m ³
133-90-4	chloramben	11 mg/m ³
88-85-7	dinoseb	0.41 mg/m ³
87-86-5	pentachlorophenol	1 mg/m ³

- **PAC-2:**

1634-04-4	tert-butyl methyl ether	570 ppm
93-76-5	2,4,5-T (ISO)	42 mg/m ³

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94-75-7	2,4-D (ISO)	94 mg/m ³
133-90-4	chloramben	120 mg/m ³
88-85-7	dinoseb	4.5 mg/m ³
87-86-5	pentachlorophenol	15 mg/m ³
· PAC-3:		
1634-04-4	tert-butyl methyl ether	5300* ppm
93-76-5	2,4,5-T (ISO)	250 mg/m ³
94-75-7	2,4-D (ISO)	500 mg/m ³
133-90-4	chloramben	690 mg/m ³
88-85-7	dinoseb	5.4 mg/m ³
87-86-5	pentachlorophenol	150 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **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:**
- **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.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· Components with limit values that require monitoring at the workplace:

1634-04-4 tert-butyl methyl ether

TLV	Long-term value: 50 ppm
	A3

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **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 skin.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.

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· **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

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: Colorless

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: -108.6 °C (-163.5 °F)

Boiling point/Boiling range: 55.2 °C (131.4 °F)

· **Flash point:** -30 °C (-22 °F)

· **Flammability (solid, gaseous):** Highly flammable.

· **Ignition temperature:** 460 °C (860 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower: 1.6 Vol %

Upper: 8.4 Vol %

· **Vapor pressure at 20 °C (68 °F):** 268 hPa (201 mm Hg)

· **Density at 20 °C (68 °F):** 0.7405 g/cm³ (6.17947 lbs/gal)

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· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water at 25 °C (77 °F):	51 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic at 20 °C (68 °F):	0.27 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99–99.9 %
VOC content:	99–99.87 %
	998.7 g/l / 8.33 lb/gal
Solids content:	0–0.1 %
· Other information	No further relevant information available.

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.

11 Toxicological information

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

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

ATE (Acute Toxicity Estimate)

Dermal	LD50	1,001–1,010 mg/kg (rabbit)
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1634-04-4 tert-butyl methyl ether

Oral	LD50	4,000 mg/kg (rat)
Dermal	LD50	1,000 mg/kg (rabbit)
Inhalative	LC50/4 h	142 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

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· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
1634-04-4	tert-butyl methyl ether	3
93-76-5	2,4,5-T (ISO)	2B
94-75-7	2,4-D (ISO)	2B
87-86-5	pentachlorophenol	1
· NTP (National Toxicology Program)		
87-86-5	pentachlorophenol	R
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	UN1993
· UN proper shipping name	
· DOT	Flammable liquids, n.o.s. (Methyl tert-butyl ether)
· IMDG	FLAMMABLE LIQUID, N.O.S. (METHYL tert-BUTYL ETHER)
· IATA	Flammable liquid, n.o.s. (METHYL tert-BUTYL ETHER)

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<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	
	
<ul style="list-style-type: none"> · Class · Label 	<p>3 Flammable liquids</p> <p>3</p>
<ul style="list-style-type: none"> · IMDG, IATA 	
	
<ul style="list-style-type: none"> · Class · Label 	<p>3 Flammable liquids</p> <p>3</p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p>II</p>
<ul style="list-style-type: none"> · Environmental hazards: 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category 	<p>Warning: Flammable liquids</p> <p>33</p> <p>F-E, S-E</p> <p>B</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	
<p>On passenger aircraft/rail: 5 L</p> <p>On cargo aircraft only: 60 L</p>	
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	
<p>IL</p> <p>Code: E2</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 500 ml</p>	
<ul style="list-style-type: none"> · UN "Model Regulation": 	<p>UN 1993 FLAMMABLE LIQUID, N.O.S. (METHYL TERT-BUTYL ETHER), 3, II</p>

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **Sara**

· **Section 355 (extremely hazardous substances):**

88-85-7 | dinoseb

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· Section 313 (Specific toxic chemical listings):	
1634-04-4	<i>tert-butyl methyl ether</i>
94-82-6	<i>2,4-DB (ISO)</i>
1918-00-9	<i>dicamba(ISO)</i>
94-75-7	<i>2,4-D (ISO)</i>
120-36-5	<i>dichlorprop (ISO)</i>
709-98-8	<i>propanil (ISO)</i>
133-90-4	<i>chloramben</i>
88-85-7	<i>dinoseb</i>
87-86-5	<i>pentachlorophenol</i>

· TSCA (Toxic Substances Control Act):		
1634-04-4	<i>tert-butyl methyl ether</i>	ACTIVE
93-76-5	<i>2,4,5-T (ISO)</i>	ACTIVE
50594-66-6	<i>5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoic acid</i>	ACTIVE
51-36-5	<i>3,5-dichlorobenzoic acid</i>	ACTIVE
94-75-7	<i>2,4-D (ISO)</i>	ACTIVE
25057-89-0	<i>bentazone (ISO)</i>	ACTIVE
120-36-5	<i>dichlorprop (ISO)</i>	ACTIVE
133-90-4	<i>chloramben</i>	ACTIVE
75-99-0	<i>2,2-dichloropropionic acid</i>	ACTIVE
88-85-7	<i>dinoseb</i>	ACTIVE
87-86-5	<i>pentachlorophenol</i>	ACTIVE

· Hazardous Air Pollutants	
1634-04-4	<i>tert-butyl methyl ether</i>
94-75-7	<i>2,4-D (ISO)</i>
133-90-4	<i>chloramben</i>
87-86-5	<i>pentachlorophenol</i>

· **Proposition 65**

· Chemicals known to cause cancer:	
87-86-5	<i>pentachlorophenol</i>

· Chemicals known to cause reproductive toxicity for females:	
<i>None of the ingredients is listed.</i>	

· Chemicals known to cause reproductive toxicity for males:	
94-82-6	<i>2,4-DB (ISO)</i>
88-85-7	<i>dinoseb</i>

· Chemicals known to cause developmental toxicity:	
88-85-7	<i>dinoseb</i>

· **Carcinogenic categories**

· EPA (Environmental Protection Agency)		
25057-89-0	<i>bentazone (ISO)</i>	<i>E, NL</i>
88-85-7	<i>dinoseb</i>	<i>D</i>
87-86-5	<i>pentachlorophenol</i>	<i>L</i>

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· TLV (Threshold Limit Value)		
1634-04-4	tert-butyl methyl ether	A3
93-76-5	2,4,5-T (ISO)	A4
94-75-7	2,4-D (ISO)	A4
75-99-0	2,2-dichloropropionic acid	A4
87-86-5	pentachlorophenol	A3

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

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

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** Danger

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

tert-butyl methyl ether

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful in contact with skin.

Causes skin irritation.

· **Precautionary statements**

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.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Call a poison center/doctor if you feel unwell.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

In case of fire: Use CO₂, powder or water spray to extinguish.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environment protection department.

· **Contact:** - Department Technical Manager

· **Date of preparation / last revision** 04/09/2024

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

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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)
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
Acute Toxicity - Dermal 4: Acute toxicity – Category 4
Skin Irritation 2: Skin corrosion/irritation – Category 2

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