

SAFETY DATA SHEET



RNA Isolation Kit, Part Number 200345

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : RNA Isolation Kit, Part Number 200345
Part no. (chemical kit) : 200345
Part no. : Mercaptoethanol 200345-21
Isopropanol 200345-17
Denaturing solution 200345-14
2M Sodium Acetate 200345-16
RNA Phenol pH 5.3 - 5.7 200345-64
Equilibrated with Succinic Acid
RNA Isolation 200345-18
Chloroform, Isoamyl Alcohol

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses : Analytical reagent.
 Mercaptoethanol 0.75 mL (750 µl 14.33 M)
Isopropanol 100 mL
Denaturing solution 100 mL
2M Sodium Acetate pH : 4.0 7.5 mL
RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid 75 mL
RNA Isolation Chloroform, Isoamyl Alcohol 15 mL

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mercaptoethanol Mono-constituent substance
Isopropanol Mono-constituent substance
Denaturing solution Mixture
2M Sodium Acetate Mixture
RNA Phenol pH 5.3 - 5.7 Mixture
Equilibrated with Succinic Acid
RNA Isolation Mixture
Chloroform, Isoamyl Alcohol

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 2: Hazards identification

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

β-Mercaptoethanol

| | |
|------|--|
| H301 | ACUTE TOXICITY (oral) - Category 3 |
| H310 | ACUTE TOXICITY (dermal) - Category 2 |
| H330 | ACUTE TOXICITY (inhalation) - Category 2 |
| H315 | SKIN CORROSION/IRRITATION - Category 2 |
| H318 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| H317 | SKIN SENSITISATION - Category 1 |
| H335 | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3 |
| H411 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 |

Isopropanol

| | |
|------|--|
| H225 | FLAMMABLE LIQUIDS - Category 2 |
| H319 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| H336 | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3 |

Denaturing solution

| | |
|------|---|
| H302 | ACUTE TOXICITY (oral) - Category 4 |
| H332 | ACUTE TOXICITY (inhalation) - Category 4 |
| H412 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 |

2M Sodium Acetate

| | |
|------|--|
| H315 | SKIN CORROSION/IRRITATION - Category 2 |
| H319 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid

| | |
|------|---|
| H301 | ACUTE TOXICITY (oral) - Category 3 |
| H311 | ACUTE TOXICITY (dermal) - Category 3 |
| H331 | ACUTE TOXICITY (inhalation) - Category 3 |
| H314 | SKIN CORROSION/IRRITATION - Category 1B |
| H341 | GERM CELL MUTAGENICITY - Category 2 |
| H373 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |

RNA Isolation Chloroform, Isoamyl Alcohol

| | |
|-------|---|
| H302 | ACUTE TOXICITY (oral) - Category 4 |
| H331 | ACUTE TOXICITY (inhalation) - Category 3 |
| H315 | SKIN CORROSION/IRRITATION - Category 2 |
| H319 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| H351 | CARCINOGENICITY - Category 2 |
| H361d | REPRODUCTIVE TOXICITY (Unborn child) - Category 2 |
| H372 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1 |

Ingredients of unknown toxicity

| | |
|---|--|
| : 2M Sodium Acetate | Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 10 - 30% |
| | Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30% |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10% |
| | Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10% |

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 2: Hazards identification

| | | |
|--------------------------|--|--|
| Hazard pictograms | : <input checked="" type="checkbox"/> Mercaptoethanol |  |
| | Isopropanol |  |
| | Denaturing solution |  |
| | 2M Sodium Acetate |  |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid |  |
| | RNA Isolation Chloroform, Isoamyl Alcohol |  |
| Signal word | : <input checked="" type="checkbox"/> Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Danger Danger Warning Warning Danger Danger |
| Hazard statements | : <input checked="" type="checkbox"/> Mercaptoethanol | H310 + H330 - Fatal in contact with skin or if inhaled. H301 - Toxic if swallowed. H318 - Causes serious eye damage. H315 - Causes skin irritation. H317 - May cause an allergic skin reaction. H335 - May cause respiratory irritation. |
| | Isopropanol | H411 - Toxic to aquatic life with long lasting effects. H225 - Highly flammable liquid and vapour. H319 - Causes serious eye irritation. H336 - May cause drowsiness or dizziness. |
| | Denaturing solution | H302 + H332 - Harmful if swallowed or if inhaled. H412 - Harmful to aquatic life with long lasting effects. |
| | 2M Sodium Acetate | H319 - Causes serious eye irritation. H315 - Causes skin irritation. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled. H314 - Causes severe skin burns and eye damage. H341 - Suspected of causing genetic defects. H373 - May cause damage to organs through prolonged or repeated exposure. |

RNA Isolation Kit, Part Number 200345

SECTION 2: Hazards identification

RNA Isolation
Chloroform, Isoamyl
Alcohol

H331 - Toxic if inhaled.

H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H361d - Suspected of damaging the unborn child.
H351 - Suspected of causing cancer.
H372 - Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention

: Mercaptoethanol

P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P273 - Avoid release to the environment.
P262 - Do not get in eyes, on skin, or on clothing.
P260 - Do not breathe vapour.

Isopropanol

P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Denaturing solution

P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapour.

2M Sodium Acetate

P280 - Wear protective gloves. Wear eye or face protection.
P264 - Wash hands thoroughly after handling.

RNA Phenol pH 5.3 - 5.7
Equilibrated with
Succinic Acid

P201 - Obtain special instructions before use.

RNA Isolation
Chloroform, Isoamyl
Alcohol

P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P260 - Do not breathe vapour.
P201 - Obtain special instructions before use.

Response

: Mercaptoethanol

P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or physician.
P302 + P310 - IF ON SKIN: Immediately call a POISON CENTER or physician.
P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.

Isopropanol

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

Denaturing solution

P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

2M Sodium Acetate

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

RNA Phenol pH 5.3 - 5.7
Equilibrated with
Succinic Acid

P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

SECTION 2: Hazards identification

| | | |
|---|--|--|
| | | P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or physician. P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician. P304 + P340 + P311 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician. |
| Storage | <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> <p>: <input checked="" type="checkbox"/> Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid</p> <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> | <p>P405 - Store locked up. P405 - Store locked up. Not applicable. Not applicable. P405 - Store locked up.</p> <p>P405 - Store locked up.</p> |
| Disposal | <p>: <input checked="" type="checkbox"/> Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid</p> <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> | <p>P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.</p> <p>P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.</p> |
| Hazardous ingredients | <p>: Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid</p> <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> | <p>- salts of thiocyanic acid Not applicable. - phenol - trichloromethane</p> |
| Supplemental label elements | <p>: <input checked="" type="checkbox"/> Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid</p> <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> | <p>Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.</p> <p>Not applicable.</p> |
| Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles | <p>: <input checked="" type="checkbox"/> Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid</p> <p>RNA Isolation Chloroform, Isoamyl Alcohol</p> | <p>Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.</p> <p>For use in industrial installations only.</p> |
| Special packaging requirements | | |

RNA Isolation Kit, Part Number 200345

SECTION 2: Hazards identification

| | | |
|----------------------------------|--|-----------------|
| Tactile warning of danger | : <input checked="" type="checkbox"/> β-Mercaptoethanol | Not applicable. |
| | Isopropanol | Not applicable. |
| | Denaturing solution | Not applicable. |
| | 2M Sodium Acetate | Not applicable. |
| | RNA Phenol pH 5.3 - 5.7 | Not applicable. |
| | Equilibrated with Succinic Acid | |
| | RNA Isolation | Not applicable. |
| | Chloroform, Isoamyl Alcohol | |

2.3 Other hazards

| | | |
|--|--|-------------------------------|
| Other hazards which do not result in classification | : <input checked="" type="checkbox"/> β-Mercaptoethanol | None known. |
| | Isopropanol | None known. |
| | Denaturing solution | None known. |
| | 2M Sodium Acetate | None known. |
| | RNA Phenol pH 5.3 - 5.7 | Causes digestive tract burns. |
| | Equilibrated with Succinic Acid | |
| | RNA Isolation | None known. |
| | Chloroform, Isoamyl Alcohol | |

SECTION 3: Composition/information on ingredients

| | | |
|-----------------------|--|----------------------------|
| 3.1 Substances | : <input checked="" type="checkbox"/> β-Mercaptoethanol | Mono-constituent substance |
| | Isopropanol | Mono-constituent substance |
| | Denaturing solution | Mixture |
| | 2M Sodium Acetate | Mixture |
| | RNA Phenol pH 5.3 - 5.7 | Mixture |
| | Equilibrated with Succinic Acid | |
| | RNA Isolation Chloroform, Isoamyl | Mixture |
| | Alcohol | |

| Product/ingredient name | Identifiers | % | Regulation (EC) No. 1272/2008 [CLP] | Type |
|--|---|-----------|---|------|
| <input checked="" type="checkbox"/> β-Mercaptoethanol β-Mercaptoethanol | EC: 200-464-6 CAS: 60-24-2 | 100 | Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411 | [A] |
| Isopropanol Propan-2-ol | EC: 200-661-7 CAS: 67-63-0 Index: 603-117-00-0 | 100 | Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 | [A] |
| Denaturing solution Guanidinium thiocyanate | EC: 209-812-1 CAS: 593-84-0 Index: 615-004-00-3 | ≥25 - ≤50 | Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Aquatic Chronic 3, H412 EUH032 | [1] |
| Sodium N-lauroylsarcosinate | EC: 205-281-5 CAS: 137-16-6 | <1 | Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 | [1] |

RNA Isolation Kit, Part Number 200345

SECTION 3: Composition/information on ingredients

| | | | | |
|--|---|-----------|--|---------|
| 2M Sodium Acetate acetic acid | EC: 200-580-7 CAS: 64-19-7 Index: 607-002-00-6 | ≥25 - ≤50 | Flam. Liq. 3, H226 Skin Corr. 1A, H314 | [1] [2] |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Phenol | EC: 203-632-7 CAS: 108-95-2 Index: 604-001-00-2 | ≥90 | Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Corr. 1B, H314 Muta. 2, H341 STOT RE 2, H373 | [1] [2] |
| Succinic acid | EC: 203-740-4 CAS: 110-15-6 | ≤3 | Eye Irrit. 2, H319 | [1] |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | EC: 200-663-8 CAS: 67-66-3 Index: 602-006-00-4 | ≥90 | Acute Tox. 4, H302 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 Repr. 2, H361d (Unborn child) STOT RE 1, H372 | [1] [2] |
| 3-Methylbutan-1-ol | EC: 204-633-5 CAS: 123-51-3 Index: 603-006-00-7 | ≤3 | Flam. Liq. 3, H226 Acute Tox. 4, H332 STOT SE 3, H335 EUH066 See Section 16 for the full text of the H statements declared above. | [1] [2] |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy
- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

SECTION 4: First aid measures

4.1 Description of first aid measures

| | | |
|--------------------|---|--|
| Eye contact | : <input checked="" type="checkbox"/> Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. |
| | Isopropanol | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. |
| | Denaturing solution | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove |

SECTION 4: First aid measures

| | | |
|-------------------|---|---|
| | | any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. |
| | 2M Sodium Acetate | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. |
| Inhalation | :  Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | Isopropanol | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | Denaturing solution | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| | 2M Sodium Acetate | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health |

RNA Isolation Kit, Part Number 200345

SECTION 4: First aid measures

| | | |
|---------------------|--|---|
| | | effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Skin contact | :  -Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Gently wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | Isopropanol | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | Denaturing solution | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | 2M Sodium Acetate | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing |

RNA Isolation Kit, Part Number 200345

SECTION 4: First aid measures

Ingestion

:  Mercaptoethanol

before reuse. Clean shoes thoroughly before reuse.

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Isopropanol

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Denaturing solution

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

2M Sodium Acetate

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

RNA Phenol pH 5.3 - 5.7
Equilibrated with
Succinic Acid

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been

RNA Isolation Kit, Part Number 200345

SECTION 4: First aid measures

| | |
|---|--|
| | swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| RNA Isolation Chloroform, Isoamyl Alcohol | Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Protection of first-aiders :  -Mercaptoethanol | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |
| Isopropanol | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| Denaturing solution | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| 2M Sodium Acetate | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |
| RNA Isolation Chloroform, Isoamyl Alcohol | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

| | | |
|---------------------|---|--|
| Eye contact | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Causes serious eye damage. Causes serious eye irritation. No known significant effects or critical hazards. Causes serious eye irritation. Causes serious eye damage. Causes serious eye irritation. |
| Inhalation | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Fatal if inhaled. May cause respiratory irritation. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Harmful if inhaled. No known significant effects or critical hazards. Toxic if inhaled. Toxic if inhaled. |
| Skin contact | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes skin irritation. Causes severe burns. Toxic in contact with skin. Causes skin irritation. |
| Ingestion | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Toxic if swallowed. Can cause central nervous system (CNS) depression. Harmful if swallowed. No known significant effects or critical hazards. Toxic if swallowed. Corrosive to the digestive tract. Causes burns. Harmful if swallowed. |

Over-exposure signs/symptoms

| | | |
|--------------------|---|--|
| Eye contact | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with | Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain or irritation watering redness No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: |
|--------------------|---|--|

RNA Isolation Kit, Part Number 200345

SECTION 4: First aid measures

| | | |
|---------------------|--|--|
| | Succinic Acid | pain watering redness |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Adverse symptoms may include the following: pain or irritation watering redness |
| Inhalation | :  -Mercaptoethanol | Adverse symptoms may include the following: respiratory tract irritation coughing |
| | Isopropanol | Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness |
| | Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | No specific data. No specific data. No specific data. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations |
| Skin contact | :  -Mercaptoethanol | Adverse symptoms may include the following: pain or irritation redness blistering may occur |
| | Isopropanol Denaturing solution 2M Sodium Acetate | No specific data. No specific data. Adverse symptoms may include the following: irritation redness |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Adverse symptoms may include the following: pain or irritation redness blistering may occur |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Adverse symptoms may include the following: irritation redness reduced foetal weight increase in foetal deaths skeletal malformations |
| Ingestion | :  -Mercaptoethanol | Adverse symptoms may include the following: stomach pains |
| | Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | No specific data. No specific data. No specific data. Adverse symptoms may include the following: |

RNA Isolation Kit, Part Number 200345

SECTION 4: First aid measures

| | |
|---|--|
| RNA Isolation Chloroform, Isoamyl Alcohol | stomach pains Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations |
|---|--|

4.3 Indication of any immediate medical attention and special treatment needed

| | | |
|----------------------------|---|--|
| Notes to physician | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Specific treatments | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. |

SECTION 5: Firefighting measures

5.1 Extinguishing media

| | | |
|---------------------------------------|---|---|
| Suitable extinguishing media | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Use an extinguishing agent suitable for the surrounding fire. Use dry chemical, CO ₂ , water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | None known. Do not use water jet. None known. None known. None known. None known. |

5.2 Special hazards arising from the substance or mixture

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 5: Firefighting measures

| | | |
|--|--|--|
| Hazards from the substance or mixture | : <input checked="" type="checkbox"/> -Mercaptoethanol | In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |
| | Isopropanol | Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. |
| | Denaturing solution | In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |
| | 2M Sodium Acetate | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | In a fire or if heated, a pressure increase will occur and the container may burst. |
| Hazardous combustion products | RNA Isolation Chloroform, Isoamyl Alcohol | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | : <input checked="" type="checkbox"/> -Mercaptoethanol | Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides |
| | Isopropanol | Decomposition products may include the following materials: carbon dioxide carbon monoxide |
| | Denaturing solution | Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides |
| | 2M Sodium Acetate | Decomposition products may include the following materials: carbon dioxide carbon monoxide metal oxide/oxides |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Decomposition products may include the following materials: carbon dioxide carbon monoxide |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides |

5.3 Advice for firefighters

SECTION 5: Firefighting measures

| | | |
|---|--|---|
| Special precautions for fire-fighters | : <input checked="" type="checkbox"/> -Mercaptoethanol | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | Isopropanol | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| | Denaturing solution | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | 2M Sodium Acetate | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special protective equipment for fire-fighters | : <input checked="" type="checkbox"/> -Mercaptoethanol | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |
| | Isopropanol | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |
| | Denaturing solution | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |
| | 2M Sodium Acetate | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

| | | |
|------------------------------------|---|---|
| For non-emergency personnel | : <input checked="" type="checkbox"/> -Mercaptoethanol | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| | Isopropanol | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| | Denaturing solution | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| | 2M Sodium Acetate | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For emergency responders | : <input checked="" type="checkbox"/> -Mercaptoethanol | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | Isopropanol | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | Denaturing solution | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | 2M Sodium Acetate | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |

RNA Isolation Kit, Part Number 200345

SECTION 6: Accidental release measures

| | |
|---|---|
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| RNA Isolation Chloroform, Isoamyl Alcohol | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |

6.2 Environmental precautions

| | |
|---|--|
| : <input checked="" type="checkbox"/> Mercaptoethanol | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage. |
| Isopropanol | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Denaturing solution | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. |
| 2M Sodium Acetate | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| RNA Isolation Chloroform, Isoamyl Alcohol | Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |

6.3 Methods and material for containment and cleaning up

| | |
|---|--|
| Methods for cleaning up : <input checked="" type="checkbox"/> Mercaptoethanol | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| Isopropanol | Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| Denaturing solution | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| 2M Sodium Acetate | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| RNA Phenol pH 5.3 - 5.7 | Stop leak if without risk. Move containers from spill area. |

RNA Isolation Kit, Part Number 200345

SECTION 6: Accidental release measures

| | |
|---|---|
| Equilibrated with Succinic Acid | Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| RNA Isolation Chloroform, Isoamyl Alcohol | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

| | |
|---|---|
| Protective measures :  -Mercaptoethanol | Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| Isopropanol | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| Denaturing solution | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| 2M Sodium Acetate | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have |

RNA Isolation Kit, Part Number 200345

SECTION 7: Handling and storage

Advice on general occupational hygiene

| | | |
|---|--|--|
| RNA Isolation Chloroform, Isoamyl Alcohol | | been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| | :  -Mercaptoethanol | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | Isopropanol | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | Denaturing solution | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | 2M Sodium Acetate | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |

7.2 Conditions for safe storage, including any incompatibilities

Storage :

SECTION 7: Handling and storage

| | |
|--|--|
|  -Mercaptoethanol | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| Isopropanol | Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| Denaturing solution | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| 2M Sodium Acetate | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| RNA Isolation Chloroform, Isoamyl Alcohol | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

RNA Isolation Kit, Part Number 200345

SECTION 7: Handling and storage

Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|--|---------------------------------|-------------------------|
| <input checked="" type="checkbox"/> -Mercaptoethanol H2 E2 | 50 200 | 200 500 |
| Isopropanol P5c | 5000 | 50000 |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid H2 | 50 | 200 |
| RNA Isolation Chloroform, Isoamyl Alcohol H2 | 50 | 200 |

7.3 Specific end use(s)

| | | | |
|---|---|---|--|
| Recommendations | : | <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Industrial applications, Professional applications. Industrial applications, Professional applications. |
| Industrial sector specific solutions | : | <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. |

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

| Product/ingredient name | Exposure limit values |
|--|--|
| <input checked="" type="checkbox"/> Isopropanol Propan-2-ol | EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 1250 mg/m ³ 15 minutes. STEL: 500 ppm 15 minutes. TWA: 999 mg/m ³ 8 hours. TWA: 400 ppm 8 hours. |
| 2M Sodium Acetate acetic acid | EU OEL (Europe, 12/2017). Notes: list of indicative occupational exposure limit values STEL: 20 ppm 15 minutes. STEL: 50 mg/m ³ 15 minutes. |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | |

RNA Isolation Kit, Part Number 200345

SECTION 8: Exposure controls/personal protection

| | |
|---|---|
| Phenol | EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. TWA: 2 ppm 8 hours. STEL: 16 mg/m ³ 15 minutes. STEL: 4 ppm 15 minutes. TWA: 7.8 mg/m ³ 8 hours. |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. TWA: 2 ppm 8 hours. TWA: 9.9 mg/m ³ 8 hours. |
| 3-Methylbutan-1-ol | EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 458 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 366 mg/m ³ 8 hours. TWA: 100 ppm 8 hours. |

Recommended monitoring procedures

: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

RNA Isolation Kit, Part Number 200345

SECTION 8: Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Mercaptoethanol Liquid.
Isopropanol Liquid.
Denaturing solution Liquid.
2M Sodium Acetate Liquid.
RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Liquid.
RNA Isolation Liquid.
Chloroform, Isoamyl Alcohol
- Colour** : Mercaptoethanol Colourless.
Isopropanol Colourless.
Denaturing solution Not available.
2M Sodium Acetate Not available.
RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Not available.
RNA Isolation Not available.
Chloroform, Isoamyl Alcohol
- Odour** : Mercaptoethanol Characteristic.
Isopropanol Alcohol-like.
Denaturing solution Not available.
2M Sodium Acetate Not available.
RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Not available.
RNA Isolation Not available.
Chloroform, Isoamyl Alcohol

RNA Isolation Kit, Part Number 200345

SECTION 9: Physical and chemical properties

| | | |
|--|--|--|
| Odour threshold | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Not available. Not available. Not available. Not available. Not available. Not available. Not available. |
| pH | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Not available. Not available. 7 4 5.3 to 5.7 Not available. Not available. |
| Melting point/freezing point | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | -100°C -90°C Not available. Not available. 40.85°C Not available. -64°C |
| Initial boiling point and boiling range | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | 157°C 83°C Not available. Not available. 182°C 62°C |
| Flash point | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Closed cup: 74°C Open cup: 74°C Closed cup: 11.7°C Not available. Not available. Closed cup: 79°C Not available. |
| Evaporation rate | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5. 7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | Not available. Not available. Not available. Not available. Not available. Not available. |

RNA Isolation Kit, Part Number 200345

SECTION 9: Physical and chemical properties

| | | | |
|---|---|---|------------------------------|
| | | Alcohol | |
| Flammability (solid, gas) | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Not applicable. |
| | | Isopropanol | Not applicable. |
| | | Denaturing solution | Not applicable. |
| | | 2M Sodium Acetate | Not applicable. |
| | | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not applicable. |
| | | RNA Isolation | Not applicable. |
| | | Chloroform, Isoamyl Alcohol | |
| Upper/lower flammability or explosive limits | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Lower: 2.3% Upper: 18% |
| | | Isopropanol | Lower: 2% Upper: 12% |
| | | Denaturing solution | Not available. |
| | | 2M Sodium Acetate | Not available. |
| | | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Lower: 1.36% |
| | | RNA Isolation | Upper: 10% Not available. |
| | | Chloroform, Isoamyl Alcohol | |
| Vapour pressure | : | <input checked="" type="checkbox"/> -Mercaptoethanol | 0.13 kPa [room temperature] |
| | | Isopropanol | 4.4 kPa [room temperature] |
| | | Denaturing solution | Not available. |
| | | 2M Sodium Acetate | Not available. |
| | | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | | RNA Isolation | Not available. |
| | | Chloroform, Isoamyl Alcohol | |
| Vapour density | : | <input checked="" type="checkbox"/> -Mercaptoethanol | 2.7 [Air = 1] |
| | | Isopropanol | 2.1 [Air = 1] |
| | | Denaturing solution | Not available. |
| | | 2M Sodium Acetate | Not available. |
| | | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | | RNA Isolation | Not available. |
| | | Chloroform, Isoamyl Alcohol | |
| Relative density | : | <input checked="" type="checkbox"/> -Mercaptoethanol | 1.1 |
| | | Isopropanol | 0.79 |
| | | Denaturing solution | Not available. |
| | | 2M Sodium Acetate | Not available. |
| | | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | | RNA Isolation | Not available. |
| | | Chloroform, Isoamyl Alcohol | |

RNA Isolation Kit, Part Number 200345

SECTION 9: Physical and chemical properties

| | | |
|---|---|---|
| Solubility(ies) | : <input checked="" type="checkbox"/> -Mercaptoethanol | Easily soluble in the following materials: cold water and hot water. |
| | Isopropanol | Easily soluble in the following materials: cold water and hot water. |
| | Denaturing solution | Soluble in the following materials: cold water and hot water. |
| | 2M Sodium Acetate | Easily soluble in the following materials: cold water and hot water. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | RNA Isolation | Very slightly soluble in the following materials: cold water and hot water. |
| | Chloroform, Isoamyl Alcohol | |
| Partition coefficient: n-octanol/water | : <input checked="" type="checkbox"/> -Mercaptoethanol | -0.056 |
| | Isopropanol | Not available. |
| | Denaturing solution | Not available. |
| | 2M Sodium Acetate | Not available. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | RNA Isolation | Not available. |
| | Chloroform, Isoamyl Alcohol | |
| Auto-ignition temperature | : <input checked="" type="checkbox"/> -Mercaptoethanol | 295°C |
| | Isopropanol | Not available. |
| | Denaturing solution | Not available. |
| | 2M Sodium Acetate | Not available. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | RNA Isolation | Not available. |
| | Chloroform, Isoamyl Alcohol | |
| Decomposition temperature | : <input checked="" type="checkbox"/> -Mercaptoethanol | Not available. |
| | Isopropanol | Not available. |
| | Denaturing solution | Not available. |
| | 2M Sodium Acetate | Not available. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | RNA Isolation | Not available. |
| | Chloroform, Isoamyl Alcohol | |
| Viscosity | : <input checked="" type="checkbox"/> -Mercaptoethanol | Dynamic (room temperature): 3.43 mPa·s |
| | Isopropanol | Not available. |
| | Denaturing solution | Not available. |
| | 2M Sodium Acetate | Not available. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Not available. |
| | RNA Isolation | Not available. |
| | Chloroform, Isoamyl Alcohol | |

RNA Isolation Kit, Part Number 200345

SECTION 9: Physical and chemical properties

| | | | | |
|-----------------------------|-----------------------------|--|--|----------------|
| Explosive properties | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Not available. | |
| | | Isopropanol | Not available. | |
| | | Denaturing solution | Not available. | |
| | | 2M Sodium Acetate | Not available. | |
| | | RNA Phenol pH 5.3 - 5. | Not available. | |
| | | 7 Equilibrated with Succinic Acid | | |
| | | RNA Isolation | Not available. | |
| | | Chloroform, Isoamyl Alcohol | | |
| | Oxidising properties | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Not available. |
| | | | Isopropanol | Not available. |
| | | Denaturing solution | Not available. | |
| | | 2M Sodium Acetate | Not available. | |
| | | RNA Phenol pH 5.3 - 5. | Not available. | |
| | | 7 Equilibrated with Succinic Acid | | |
| | | RNA Isolation | Not available. | |
| | | Chloroform, Isoamyl Alcohol | | |

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

| | | | | |
|--|--------------------------------|--|--|---|
| 10.1 Reactivity | : | <input checked="" type="checkbox"/> -Mercaptoethanol | No specific test data related to reactivity available for this product or its ingredients. | |
| | | Isopropanol | No specific test data related to reactivity available for this product or its ingredients. | |
| | | Denaturing solution | No specific test data related to reactivity available for this product or its ingredients. | |
| | | 2M Sodium Acetate | No specific test data related to reactivity available for this product or its ingredients. | |
| | | RNA Phenol pH 5.3 - 5.7 | No specific test data related to reactivity available for this product or its ingredients. | |
| | | Equilibrated with Succinic Acid | | |
| | | RNA Isolation | No specific test data related to reactivity available for this product or its ingredients. | |
| | | Chloroform, Isoamyl Alcohol | | |
| | 10.2 Chemical stability | : | <input checked="" type="checkbox"/> -Mercaptoethanol | The product is stable. |
| | | | Isopropanol | The product is stable. |
| | | Denaturing solution | The product is stable. | |
| | | 2M Sodium Acetate | The product is stable. | |
| | | RNA Phenol pH 5.3 - 5.7 | The product is stable. | |
| | | Equilibrated with Succinic Acid | | |
| | | RNA Isolation | The product is stable. | |
| | | Chloroform, Isoamyl Alcohol | | |
| 10.3 Possibility of hazardous reactions | | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | | | Isopropanol | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | | Denaturing solution | Under normal conditions of storage and use, hazardous reactions will not occur. | |
| | | 2M Sodium Acetate | Under normal conditions of storage and use, hazardous reactions will not occur. | |

RNA Isolation Kit, Part Number 200345

SECTION 10: Stability and reactivity

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Under normal conditions of storage and use, hazardous reactions will not occur.

RNA Isolation Chloroform, Isoamyl Alcohol Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : -Mercaptoethanol Isopropanol No specific data. Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

Denaturing solution No specific data.

2M Sodium Acetate No specific data.

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid No specific data.

RNA Isolation Chloroform, Isoamyl Alcohol No specific data.

10.5 Incompatible materials : -Mercaptoethanol Isopropanol May react or be incompatible with oxidising materials. Reactive or incompatible with the following materials: oxidizing materials

Denaturing solution May react or be incompatible with oxidising materials.

2M Sodium Acetate May react or be incompatible with oxidising materials.

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid May react or be incompatible with oxidising materials.

RNA Isolation Chloroform, Isoamyl Alcohol May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products : -Mercaptoethanol Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Isopropanol Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Denaturing solution Under normal conditions of storage and use, hazardous decomposition products should not be produced.

2M Sodium Acetate Under normal conditions of storage and use, hazardous decomposition products should not be produced.

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Under normal conditions of storage and use, hazardous decomposition products should not be produced.

RNA Isolation Chloroform, Isoamyl Alcohol Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

| Product/ingredient name | Result | Species | Dose | Exposure |
|--|---|------------------------------------|--|-----------------------------|
| β-Mercaptoethanol β-Mercaptoethanol | LD50 Dermal LD50 Oral | Rabbit Rat | 167.1 mg/kg 244 mg/kg | - - |
| Isopropanol Propan-2-ol | LD50 Dermal LD50 Oral | Rabbit Rat | 12800 mg/kg 5000 mg/kg | - - |
| Denaturing solution Sodium N-lauroylsarcosinate | LC50 Inhalation Dusts and mists | Rat - Male, Female | 0.05 to 0.5 mg/l | 4 hours |
| 2M Sodium Acetate acetic acid | LC50 Inhalation Vapour LD50 Dermal LD50 Oral | Rat Rabbit Rat | 11000 mg/m ³ 1060 mg/kg 3310 mg/kg | 4 hours - - |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Phenol | LC50 Inhalation Dusts and mists LD50 Dermal LD50 Dermal LD50 Oral LD50 Oral | Rat Rabbit Rat Rat Rat | 316 mg/m ³ 630 mg/kg 669 mg/kg 317 mg/kg 2260 mg/kg | 4 hours - - - - |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | LD50 Dermal LD50 Oral | Rabbit Rat | >20 g/kg 300 mg/kg | - - |
| 3-Methylbutan-1-ol | LD50 Oral | Rat | 1300 mg/kg | - |

Acute toxicity estimates

| Route | ATE value |
|--|---|
| Denaturing solution Oral Dermal Inhalation (dusts and mists) | 1058 mg/kg 2327.7 mg/kg 2.41 mg/l |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Oral Dermal Inhalation (dusts and mists) | 102 mg/kg 642.9 mg/kg 0.5102 mg/l |
| RNA Isolation Chloroform, Isoamyl Alcohol Oral Inhalation (vapours) | 510.2 mg/kg 7.397 mg/l |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|--------------------------|---------|-------|-------------------------|-------------|
| β-Mercaptoethanol β-Mercaptoethanol | Eyes - Severe irritant | Rabbit | - | 2 milligrams | - |
| Isopropanol Propan-2-ol | Eyes - Moderate irritant | Rabbit | - | 24 hours 100 milligrams | - |
| | Eyes - Moderate irritant | Rabbit | - | 10 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 500 | - |

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

| | | | | | |
|--|--|------------------|--------|--------------------------------|--------|
| 2M Sodium Acetate acetic acid | Skin - Severe irritant | Rabbit | - | milligrams 525 milligrams | - |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Phenol | Eyes - Severe irritant Skin - Severe irritant | Rabbit Rabbit | - - | 5 milligrams 535 milligrams | - - |
| Succinic acid | Eyes - Severe irritant | Rabbit | - | 750 Micrograms | - |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | Eyes - Moderate irritant | Rabbit | - | 24 hours 20 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 milligrams | - |
| 3-Methylbutan-1-ol | Eyes - Moderate irritant | Rabbit | - | 24 hours 20 milligrams | - |
| | Skin - Moderate irritant | Rabbit | - | 24 hours 20 milligrams | - |

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

| Product/ingredient name | Category | Route of exposure | Target organs |
|--|------------|-------------------|------------------------------|
| β-Mercaptoethanol β-Mercaptoethanol | Category 3 | Not applicable. | Respiratory tract irritation |
| Isopropanol Propan-2-ol | Category 3 | Not applicable. | Narcotic effects |
| RNA Isolation Chloroform, Isoamyl Alcohol 3-Methylbutan-1-ol | Category 3 | Not applicable. | Respiratory tract irritation |

Specific target organ toxicity (repeated exposure)

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

| Product/ingredient name | Category | Route of exposure | Target organs |
|---|------------|-------------------|----------------|
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Phenol | Category 2 | Not determined | Not determined |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | Category 1 | Not determined | Not determined |

Aspiration hazard

Not available.

Information on likely routes of exposure

- : Mercaptoethanol Routes of entry anticipated: Oral, Dermal, Inhalation.
- Isopropanol Routes of entry anticipated: Oral, Dermal, Inhalation.
- Denaturing solution Routes of entry anticipated: Oral, Dermal, Inhalation.
- 2M Sodium Acetate Routes of entry anticipated: Oral, Dermal, Inhalation.
- RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Routes of entry anticipated: Oral, Dermal, Inhalation.
- RNA Isolation Chloroform, Isoamyl Alcohol Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation

- : Mercaptoethanol Fatal if inhaled. May cause respiratory irritation.
- Isopropanol Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Denaturing solution Harmful if inhaled.
- 2M Sodium Acetate No known significant effects or critical hazards.
- RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Toxic if inhaled.
- RNA Isolation Chloroform, Isoamyl Alcohol Toxic if inhaled.

Ingestion

- : Mercaptoethanol Toxic if swallowed.
- Isopropanol Can cause central nervous system (CNS) depression.
- Denaturing solution Harmful if swallowed.
- 2M Sodium Acetate No known significant effects or critical hazards.
- RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Toxic if swallowed. Corrosive to the digestive tract. Causes burns.
- RNA Isolation Chloroform, Isoamyl Alcohol Harmful if swallowed.

Skin contact

- : Mercaptoethanol Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
- Isopropanol No known significant effects or critical hazards.
- Denaturing solution No known significant effects or critical hazards.
- 2M Sodium Acetate Causes skin irritation.
- RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Causes severe burns. Toxic in contact with skin.
- RNA Isolation Chloroform, Isoamyl Alcohol Causes skin irritation.

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

| | | | |
|--------------------|---|--|---|
| Eye contact | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Causes serious eye damage. |
| | | Isopropanol | Causes serious eye irritation. |
| | | Denaturing solution | No known significant effects or critical hazards. |
| | | 2M Sodium Acetate | Causes serious eye irritation. |
| | | RNA Phenol pH 5.3 - 5.7 | Causes serious eye damage. |
| | | Equilibrated with Succinic Acid | |
| | | RNA Isolation | Causes serious eye irritation. |
| | | Chloroform, Isoamyl Alcohol | |

Symptoms related to the physical, chemical and toxicological characteristics

| | | | |
|-------------------|---|--|---|
| Inhalation | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Adverse symptoms may include the following: respiratory tract irritation coughing |
| | | Isopropanol | Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness |
| | | Denaturing solution | No specific data. |
| | | 2M Sodium Acetate | No specific data. |
| | | RNA Phenol pH 5.3 - 5.7 | No specific data. |
| | | Equilibrated with Succinic Acid | |
| | | RNA Isolation | Adverse symptoms may include the following: |
| | | Chloroform, Isoamyl Alcohol | |

reduced foetal weight
increase in foetal deaths
skeletal malformations

| | | | |
|------------------|---|--|--|
| Ingestion | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Adverse symptoms may include the following: stomach pains |
| | | Isopropanol | No specific data. |
| | | Denaturing solution | No specific data. |
| | | 2M Sodium Acetate | No specific data. |
| | | RNA Phenol pH 5.3 - 5.7 | Adverse symptoms may include the following: |
| | | Equilibrated with Succinic Acid | |
| | | RNA Isolation | stomach pains Adverse symptoms may include the following: |
| | | Chloroform, Isoamyl Alcohol | |

reduced foetal weight
increase in foetal deaths
skeletal malformations

| | | | |
|---------------------|---|--|--|
| Skin contact | : | <input checked="" type="checkbox"/> -Mercaptoethanol | Adverse symptoms may include the following: pain or irritation redness blistering may occur |
| | | Isopropanol | No specific data. |
| | | Denaturing solution | No specific data. |
| | | 2M Sodium Acetate | Adverse symptoms may include the following: irritation redness |
| | | RNA Phenol pH 5.3 - 5.7 | Adverse symptoms may include the following: |
| | | Equilibrated with Succinic Acid | |
| | | | pain or irritation redness |
| | | | |

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

| | | |
|--------------------|---|--|
| | RNA Isolation Chloroform, Isoamyl Alcohol | blistering may occur Adverse symptoms may include the following: irritation redness reduced foetal weight increase in foetal deaths skeletal malformations |
| Eye contact | : <input checked="" type="checkbox"/> Mercaptoethanol | Adverse symptoms may include the following: pain watering redness |
| | Isopropanol | Adverse symptoms may include the following: pain or irritation watering redness |
| | Denaturing solution 2M Sodium Acetate | No specific data. Adverse symptoms may include the following: pain or irritation watering redness |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | Adverse symptoms may include the following: pain watering redness |
| | RNA Isolation Chloroform, Isoamyl Alcohol | Adverse symptoms may include the following: pain or irritation watering redness |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

| | | |
|----------------|---|---|
| General | : <input checked="" type="checkbox"/> Mercaptoethanol | Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. |
| | Isopropanol | No known significant effects or critical hazards. |
| | Denaturing solution 2M Sodium Acetate | No known significant effects or critical hazards. |
| | RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | No known significant effects or critical hazards. |
| | RNA Isolation Chloroform, Isoamyl Alcohol | May cause damage to organs through prolonged or repeated exposure. Causes damage to organs through prolonged or repeated exposure. |

SECTION 11: Toxicological information

| | | |
|------------------------------|---|---|
| Carcinogenicity | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No known significant effects or critical hazards. No known significant effects or critical hazards. Suspected of causing cancer. Risk of cancer depends on duration and level of exposure. |
| Mutagenicity | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Suspected of causing genetic defects. No known significant effects or critical hazards. |
| Teratogenicity | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No known significant effects or critical hazards. No known significant effects or critical hazards. Suspected of damaging the unborn child. |
| Developmental effects | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No known significant effects or critical hazards. No known significant effects or critical hazards. |
| Fertility effects | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl Alcohol | No known significant effects or critical hazards. No known significant effects or critical hazards. |
| Other information | : <input checked="" type="checkbox"/> -Mercaptoethanol Isopropanol Denaturing solution 2M Sodium Acetate RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid RNA Isolation Chloroform, Isoamyl | Not available. Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking. Not available. Not available. Not available. Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking. |

RNA Isolation Kit, Part Number 200345

SECTION 11: Toxicological information

Alcohol

SECTION 12: Ecological information

12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|--|--|--|--|
| Isopropanol Propan-2-ol | Acute EC50 10100 mg/l Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 1400000 µg/l Marine water | Crustaceans - Crangon crangon | 48 hours |
| | Acute LC50 4200 mg/l Fresh water | Fish - Rasbora heteromorpha | 96 hours |
| Denaturing solution Sodium N-lauroylsarcosinate | Acute EC50 29 mg/l Fresh water | Algae | 72 hours |
| | Acute EC50 29.7 mg/l Fresh water | Daphnia | 48 hours |
| | Acute LC50 107 mg/l Fresh water | Fish | 96 hours |
| | Acute NOEC 9.2 mg/l Fresh water | Algae | 72 hours |
| | Acute NOEC 5 mg/l Fresh water | Daphnia | 48 hours |
| | Acute NOEC 50 mg/l Fresh water | Fish | 96 hours |
| 2M Sodium Acetate acetic acid | Acute EC50 73400 µg/l Fresh water | Algae - Navicula seminulum | 96 hours |
| | Acute EC50 65000 µg/l Fresh water | Daphnia - Daphnia magna - Neonate | 48 hours |
| | Acute LC50 32 mg/l Marine water | Crustaceans - Artemia salina | 48 hours |
| | Acute LC50 75000 µg/l Fresh water | Fish - Lepomis macrochirus | 96 hours |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Phenol | Acute EC50 61.1 µg/l Fresh water | Algae - Pseudokirchneriella subcapitata | 96 hours |
| | Acute EC50 36 mg/l Marine water | Algae - Hormosira banksii - Gamete | 72 hours |
| | Acute EC50 94 mg/l Fresh water | Aquatic plants - Lemna aequinoctialis | 96 hours |
| | Acute EC50 4200 µg/l Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 800 µg/l Marine water | Crustaceans - Archaeomysis kokuboi - Juvenile (Fledgling, Hatchling, Weanling) | 48 hours |
| | Acute LC50 1555 µg/l Fresh water | Fish - Cirrhinus mrigala - Larvae | 96 hours |
| | Chronic NOEC 16 µg/l Marine water | Algae - Hormosira banksii - Gamete | 72 hours |
| | Chronic NOEC 1.5 mg/l Fresh water | Daphnia - Daphnia magna | 21 days |
| | Chronic NOEC 118 µg/l Fresh water | Fish - Oncorhynchus mykiss | 90 days |
| | Acute EC50 >100 mg/l Fresh water | Algae | 72 hours |
| Succinic acid | Acute EC50 374200 µg/l Fresh water | Daphnia - Daphnia magna - Larvae | 48 hours |
| | Acute LC50 >100 mg/l Fresh water | Fish | 96 hours |
| | Acute NOEC 100 mg/l Fresh water | Algae | 72 hours |
| | Acute NOEC 23 mg/l Fresh water | Daphnia | 48 hours |
| | Acute NOEC 100 mg/l Fresh water | Fish | 96 hours |
| | RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | Acute EC50 13.3 mg/l Fresh water | Algae - Chlamydomonas reinhardtii - Exponential growth phase |
| Acute EC50 2.803 mg/l Fresh water | | Crustaceans - Cypris subglobosa | 48 hours |
| Acute LC50 29000 µg/l Fresh water | | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 13.3 ppm Fresh water | Fish - Lepomis macrochirus | 96 hours |

RNA Isolation Kit, Part Number 200345

SECTION 12: Ecological information

| | | | |
|--|------------------------------------|--|----------|
| | Chronic EC10 3.61 mg/l Fresh water | Algae - Chlamydomonas reinhardtii - Exponential growth phase | 72 hours |
| | Chronic NOEC 1.8 mg/l Fresh water | Daphnia - Daphnia magna | 21 days |

12.2 Persistence and degradability

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|--|-----------------------------|---------|----------|
| β-Mercaptoethanol β-Mercaptoethanol | OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test) | 69 % - Inherent - 60 days | 20 mg/l | - |
| Denaturing solution Sodium N-lauroylsarcosinate | - | 82 % - Readily - 28 days | - | - |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Succinic acid | OECD 301E Ready Biodegradability - Modified OECD Screening Test | 96.55 % - Readily - 28 days | - | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|-------------------|------------|------------------|
| Isopropanol Propan-2-ol | - | - | Readily |
| Denaturing solution Sodium N-lauroylsarcosinate | - | - | Readily |
| 2M Sodium Acetate acetic acid | - | - | Readily |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Succinic acid | - | - | Readily |
| RNA Isolation Chloroform, Isoamyl Alcohol Trichloromethane | - | - | Not readily |

12.3 Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|---|--------------------|------|-----------|
| β-Mercaptoethanol β-Mercaptoethanol | -0.056 | - | low |
| Isopropanol Propan-2-ol | 0.05 | - | low |
| 2M Sodium Acetate acetic acid | -0.17 | 3.16 | low |

RNA Isolation Kit, Part Number 200345

SECTION 12: Ecological information

| | | | |
|--|-------|-----|------|
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid | | | |
| Phenol | 1.47 | 647 | high |
| Succinic acid | -0.59 | - | low |
| RNA Isolation Chloroform, Isoamyl Alcohol | | | |
| Trichloromethane | 1.97 | 690 | high |
| 3-Methylbutan-1-ol | 1.35 | - | low |

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

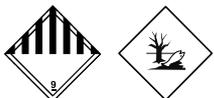
| | ADR/RID | IMDG | IATA |
|-------------------------------------|--------------|--------------|--------------|
| 14.1 UN number | UN3316 | UN3316 | UN3316 |
| 14.2 UN proper shipping name | CHEMICAL KIT | CHEMICAL KIT | Chemical kit |
| | | | |

Date of issue/Date of revision : 29/06/2018

38/44

RNA Isolation Kit, Part Number 200345

SECTION 14: Transport information

| | | | |
|---------------------------------|--|--|--|
| 14.3 Transport hazard class(es) | 9  | 9  | 9  |
| 14.4 Packing group | II | II | II |
| 14.5 Environmental hazards | Yes. | Yes. | Yes. The environmentally hazardous substance mark is not required. |

Additional information

ADR/RID

- : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Hazard identification number 90
Limited quantity See SP 251
Special provisions 251, 340
Tunnel code (E)

IMDG

- : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-A, _S-P_
Special provisions 251, 340

IATA

- : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 10 kg. Packaging instructions: 960. Cargo Aircraft Only: 10 kg. Packaging instructions: 960. Limited Quantities - Passenger Aircraft: 1 kg. Packaging instructions: Y960.
Special provisions A44, A163

14.6 Special precautions for user

- : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

- : Mercaptoethanol Not applicable.
- Isopropanol Not applicable.
- Denaturing solution Not applicable.
- 2M Sodium Acetate Not applicable.
- RNA Phenol pH 5.3 - 5.7 Not applicable.
- Equilibrated with Succinic Acid
- RNA Isolation Chloroform, Isoamyl Alcohol For use in industrial installations only.

Other EU regulations

RNA Isolation Kit, Part Number 200345

SECTION 15: Regulatory information

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

| Ingredient name | Annex | Status |
|---|------------------|--------|
| RNA Isolation Chloroform, Isoamyl Alcohol Chloroform | Annex I - Part 1 | Listed |

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

| Category |
|--|
| β-Mercaptoethanol H2 E2 |
| Isopropanol P5c |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid H2 |
| RNA Isolation Chloroform, Isoamyl Alcohol H2 |

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : Not determined.

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 15: Regulatory information

| | |
|----------------------|---|
| Taiwan | : All components are listed or exempted. |
| Thailand | : <input checked="" type="checkbox"/> Not determined. |
| Turkey | : Not determined. |
| United States | : All components are listed or exempted. |
| Viet Nam | : <input checked="" type="checkbox"/> Not determined. |

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification | Justification |
|---|--|
| <input checked="" type="checkbox"/> Mercaptoethanol Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411 | On basis of test data On basis of test data On basis of test data Expert judgment Expert judgment Expert judgment Expert judgment Expert judgment |
| Isopropanol Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 | On basis of test data Calculation method Calculation method |
| Denaturing solution Acute Tox. 4, H302 Acute Tox. 4, H332 Aquatic Chronic 3, H412 | Calculation method Calculation method Calculation method |
| 2M Sodium Acetate Skin Irrit. 2, H315 Eye Irrit. 2, H319 | Expert judgment Expert judgment |
| RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Corr. 1B, H314 Muta. 2, H341 STOT RE 2, H373 | Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method |
| RNA Isolation Chloroform, Isoamyl Alcohol Acute Tox. 4, H302 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 | Calculation method Calculation method Calculation method Calculation method Calculation method |

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 16: Other information

Repr. 2, H361d (Unborn child)
STOT RE 1, H372

Calculation method
Calculation method

Full text of abbreviated H statements

| | |
|--|---|
| <p>β-Mercaptoethanol H301 H310 H315 H317 H318 H330 H335 H411</p> | <p>Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. May cause respiratory irritation. Toxic to aquatic life with long lasting effects.</p> |
| <p>Isopropanol H225 H319 H336</p> | <p>Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness.</p> |
| <p>Denaturing solution H302 H312 H315 H318 H330 H332 H412</p> | <p>Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye damage. Fatal if inhaled. Harmful if inhaled. Harmful to aquatic life with long lasting effects.</p> |
| <p>2M Sodium Acetate H226 H314 H315 H319</p> | <p>Flammable liquid and vapour. Causes severe skin burns and eye damage. Causes skin irritation. Causes serious eye irritation.</p> |
| <p>RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid H301 H311 H314 H319 H331 H341 H373</p> | <p>Toxic if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye irritation. Toxic if inhaled. Suspected of causing genetic defects. May cause damage to organs through prolonged or repeated exposure.</p> |
| <p>RNA Isolation Chloroform, Isoamyl Alcohol H226 H302 H315 H319 H331 H332 H335 H351 H361d H372</p> | <p>Flammable liquid and vapour. Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Toxic if inhaled. Harmful if inhaled. May cause respiratory irritation. Suspected of causing cancer. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure.</p> |

Full text of classifications [CLP/GHS]

RNA Isolation Kit, Part Number 200345

SECTION 16: Other information

β-Mercaptoethanol

Acute Tox. 2, H310
Acute Tox. 2, H330
Acute Tox. 3, H301
Aquatic Chronic 2, H411
Eye Dam. 1, H318
Skin Irrit. 2, H315
Skin Sens. 1, H317
STOT SE 3, H335

ACUTE TOXICITY (dermal) - Category 2
ACUTE TOXICITY (inhalation) - Category 2
ACUTE TOXICITY (oral) - Category 3
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
SKIN CORROSION/IRRITATION - Category 2
SKIN SENSITISATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3

Isopropanol

Eye Irrit. 2, H319
Flam. Liq. 2, H225
STOT SE 3, H336

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
FLAMMABLE LIQUIDS - Category 2
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

Denaturing solution

Acute Tox. 2, H330
Acute Tox. 4, H302
Acute Tox. 4, H312
Acute Tox. 4, H332
Aquatic Chronic 3, H412
EUH032
Eye Dam. 1, H318
Skin Irrit. 2, H315

ACUTE TOXICITY (inhalation) - Category 2
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (dermal) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Contact with acids liberates very toxic gas.
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
SKIN CORROSION/IRRITATION - Category 2

2M Sodium Acetate

Eye Irrit. 2, H319
Flam. Liq. 3, H226
Skin Corr. 1A, H314
Skin Irrit. 2, H315

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
FLAMMABLE LIQUIDS - Category 3
SKIN CORROSION/IRRITATION - Category 1A
SKIN CORROSION/IRRITATION - Category 2

RNA Phenol pH 5.3 - 5.7 Equilibrated with Succinic Acid

Acute Tox. 3, H301
Acute Tox. 3, H311
Acute Tox. 3, H331
Eye Irrit. 2, H319
Muta. 2, H341
Skin Corr. 1B, H314
STOT RE 2, H373

ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (dermal) - Category 3
ACUTE TOXICITY (inhalation) - Category 3
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 2
SKIN CORROSION/IRRITATION - Category 1B
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

RNA Isolation Chloroform, Isoamyl Alcohol

Acute Tox. 3, H331
Acute Tox. 4, H302
Acute Tox. 4, H332
Carc. 2, H351
EUH066
Eye Irrit. 2, H319
Flam. Liq. 3, H226
Repr. 2, H361d
Skin Irrit. 2, H315
STOT RE 1, H372

ACUTE TOXICITY (inhalation) - Category 3
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
CARCINOGENICITY - Category 2
Repeated exposure may cause skin dryness or cracking.
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
FLAMMABLE LIQUIDS - Category 3
REPRODUCTIVE TOXICITY (Unborn child) - Category 2
SKIN CORROSION/IRRITATION - Category 2
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3

Date of issue/ Date of revision : 29/06/2018

Date of previous issue : 31/08/2016

Date of issue/Date of revision : 29/06/2018

RNA Isolation Kit, Part Number 200345

SECTION 16: Other information

Version : 2

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.