

Buffer EX Instructions

Composition

Cat. No.	9025011	9025100	9025500
Buffer EX	11 ml	100 ml	500 ml
Instructions	1	1	1

Storage

Store at room temperature (0-30°C), the expiration date is three years, avoid contact with high temperature or open flame.

Technical Support

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Introduction

Buffer EX is a mixture of non-toxic or low-toxicity organic solvents, which are low toxicity and not volatile, which can perfectly replace chloroform to extract phenol from Trizol reagent for RNA extraction. Due to the low toxicity and non-volatile nature of Buffer EX, users do not need to operate in a fume hood if they use Trizol Reagent for RNA extraction.

Buffer EX Physicochemical Property

Melting Point: -41.8°C

Boiling point: 178.3 °C

Solubility(water): 1.16 g/100 ml (20°C)

Density: 1.12~1.19 g/ml

Appearance: Colorless liquid with a special odor.

Flash Point: 84.4°C

LD50: (rat, oral) 4.293 g/kg

Protocol

In experiments where RNA is extracted from Trizol or nucleic acids are extracted using phenol chloroform, simply replace the chloroform addition step with the addition of the same volume of Buffer EX as chloroform and leave the other steps unchanged.

* e.g. when use Trizol to extract RNA, instead of adding 200 µl of chloroform per 1 ml of Trizol lysed sample, replace it with 200 µl of Buffer EX per 1 ml of Trizol lysed sample.

Cautions

1. **Buffer EX is flammable and may burn in case of open flame, high heat or contact with oxidant! (Chloroform is non-flammable)**
2. Health Hazards: Direct contact with Buffer EX has an irritating effect on the skin. It is harmful to the body when inhaled, ingested, or absorbed through the skin in large amounts. Inhalation in large quantities has an irritating effect on the eyes, mucous membranes, and upper respiratory tract.
3. The density of Buffer EX (density 1.12~1.19 g/ml) is lower than that of chloroform, the higher density precipitates after phase separation may be deposited at the bottom of the tube rather than between phases.
4. After phase separation of some samples, the interphase precipitate formed by Buffer EX will be thicker and denser than that of chloroform.
5. The density of Buffer EX (density 1.12~1.19 g/ml) is lower than that of chloroform, so when the fat content in the sample is high, the density of the organic phase with dissolved fat may be smaller than that of the aqueous phase, and the upper and lower layers are reversed after phase separation, with the organic phase in the upper layer and the aqueous phase in the lower layer. Some manufacturers provide a higher salt content in Trizol, which may make the aqueous phase denser than the organic phase, also will resulting in the upper and lower layers being reversed after the phase separation. In this case, an additional 200 μ l of Buffer EX (to increase the density of the organic phase) can be added to remix the centrifugal phase; Alternatively, discard the upper layer by pipette and pipette the lower aqueous phase into a new RNase-free 1.5 ml centrifuge tube for subsequent processing.
6. It cannot replace chloroform for some special uses, such as dissolving and bonding plexiglass (PMMA, polymethyl methacrylate).

Chloroform hazards

Molecular Cloning Experiment Guide. Abridged Edition, p. 679, Appendix 4: Chloroform (CHCl_3) has an irritating effect on the skin, eyes, mucous membranes, and respiratory tract. It is a carcinogen that can damage the liver and kidneys. It is also volatile, so avoid inhaling volatile gases. Wear appropriate gloves and safety glasses when operating and always perform in a chemical fume hood. On October 27, 2017, the World Health Organization's International Agency for Research on Cancer (IARC) published a preliminary list of carcinogens, and chloroform was included in the list of class 2B carcinogens.

According to the Regulations [on the Safety Management of Hazardous Chemicals](#) and [the Regulations on the Management of Precursor Chemicals](#), the purchase of chloroform is controlled by the public security department.

Physicochemical properties of chloroform

Melting Point: $-63.5\text{ }^{\circ}\text{C}$

Boiling Point: $61.3\text{ }^{\circ}\text{C}$

Solubility(water): 0.74 g/100 ml (20°C)

Density: 1.484 g/ml

Appearance: colorless liquid, highly volatile, with a special odor.

LD50: (rat, oral) 1.194 g/kg