

# RNA extraction kit safety precautions

Labs use RNA extraction kits to isolate total RNA from a wide variety of samples, including animal and plant cells and tissue, bacteria, and yeast. Kits may seem to be a low hazard on their own; however, it is important to remember that mixing incompatible chemicals can produce dangerous byproducts and gases.

Some researchers have accidentally mixed bleach with RNA extraction kit waste causing toxic reactions. This occurs because kits contain guanidine salts (e.g., guanidine thiocyanate and guanidine hydrochloride), which may produce hazardous gases when combined with bleach (sodium hypochlorite) and/or strong acids.

Follow these safety steps when working with RNA extractions kits:

- As biological materials are already inactivated by Trizol and other cell-lysis related reagents (e.g., DNazol, Tri-reagent, RNazol or etc), **DO NOT decontaminate them with bleach**. Dispose this kind of chemical-containing biological waste as chemical waste directly and never down a drain.
- Using bleach is dangerous and unnecessary. Trizol and related chemical reagents contain guanidine hydrochloride or other acidic solutions, such as those found in Qiagen kits are not compatible with bleach.
- When working with Trizol and/or similar chemical reagents while purifying nucleic acids, always work in a chemical fume hood and wear lab coat, disposable gloves and eye protection.
- Always read the SDS sheet for a chemical/user guide for a kit. There is a section for incompatible chemicals in SDS sheets. Visit [ThermoFisher](#) for more safety resources and information about RNA extraction kits.

**DO NOT MIX BLEACH WITH TRIZOL OR OTHER INCOMPATIBLE CHEMICALS.**

Contact [EH&S Biosafety](#) for assistance or more information.