

Supporting Information

of

A green and sustainable technology for high-efficiency and low-damage manipulation of densely crosslinked proteins

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Table S1 demonstrates the difference in potential hazards of active ingredients of the commercial product used in this research and those of our product. It could be seen that the chemicals used in the developed formula showed less potential harm comparing to those used in the commercial product.

Table S1. Comparison of active ingredients in commercial product and our formula

Chemical		Potential hazard	Source
Commercial product	Hydrogen peroxide	Eye: Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Vapors may cause eye irritation. Skin: May cause skin irritation. May cause skin discoloration. May cause reddening of the skin. Ingestion: May cause irritation of the digestive tract. May lead to distention of the esophagus and stomach. Inhalation: May cause respiratory tract irritation. Irritation may lead to chemical pneumonitis and pulmonary edema.	https://fscimage.fishersci.com/msds/40069.htm
	Ammonium thioglycolate	The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Inhalation of thioglycolic acid mists may cause olfactory paralysis, weakness, shortness of breath and liver damage.	http://datasheets.scbt.com/sc-251234.pdf
	Ammonium hydroxide	The substance is corrosive to the eyes, the skin and the respiratory tract. Corrosive on ingestion as well. Inhalation of high concentrations of vapor may cause laryngeal oedema, inflammation of the respiratory tract, and pneumonia. The effects may be delayed. Lungs may be affected by repeated or prolonged exposure to the vapor or aerosol.	https://www.cdc.gov/niosh/ipcsneng/neng0215.html
Our product	Cysteine	Cause skin irritation Cause serious eye irritation May cause respiratory irritation	https://www.fishersci.com/shop/msdsproxy?productName=C56225&productDescription=L+CYS TEINE+HCL+REAGENT+25G&catNo=C562-25&vendorId=VN00033

			897&storeId=10652
	Urea	The substance irritates the eyes, the skin and the respiratory tract. Repeated or prolonged contact with skin may cause dermatitis.	https://www.cdc.gov/niosh/ipcsneng/neng0595.html
	Citric acid	The substance is irritating to the eyes, the skin and the respiratory tract .	https://www.cdc.gov/niosh/ipcsneng/neng0855.html
	Sodium hypophosphite	Decomposes at high temperatures (>248 °C) generating flammable and toxic phosphine gas. May cause eye, skin, and respiratory tract irritation.	https://fscimage.fishersci.com/msds/21325.htm http://www.dcfinechemicals.com/files2/Hojas%20de%20seguridad%20(EN)/111780-SDS-EN.pdf