ABSTRAK

RISIKO KANDUNGAN LOGAM CROMIUM (Cr) DAN BESI (Fe) PADA DEPOT AIR MINUM ISI ULANG

SIREP SRI LESTARI

Depot Air Minum merupakan bentuk usaha pengelolaan penyediaan air minum untuk keperluan masyarakat dalam bentuk curah dan tidak dikemas. Kromium berpotensi terakumulasi dalam tubuh organisme dan dapat bersifat toksik dalam jangka panjang, yang pada akhirnya dapat menyebabkan kematian bagi organisme. Besi yang terlarut dalam air, jika dikonsumsi dapat menyebabkan gangguan pada sistem pernapasan, seperti kelemahan, batuk, sesak napas, bronchopneumonia, edema paru, sianosis, dan methemoglobinemia. Tujuannya untuk diketahui risiko kandungan logam Cromium dan Besi pada depot air minum isi ulang.

Penelitian menggunakan *literature review,* sumber data didapatkan dari jurnal nasional dan internasional yang sudah dipublikasi pada database *Google Scholar dan Elicit* dalam lima tahun terakhir (2020–2025), terakreditasi Sinta dengan kata kunci "*Besi dan Cromium*" serta "*Depot air minum isi Ulang".*

Terdapat dua jurnal penelitian yang tidak memenuhi syarat Permenkes untuk cromium maksimal 0,01 mg/l. Penelitian Rahmi, sampel A = 0,1427 mg/l, B = 0,0226 mg/L. Penelitian Ahmad dan Taufiq, sampel A = 0,02 mg/l, sampel B = 0,03 mg/l, sampel C = 0,04 mg/l, sampel D = 0,02 mg/l, dan sampel E= 0,04 mg/l. Tujuh jurnal yang melebihi standar Fe yaitu di atas 0,2 mg/L pada penelitian Zendrato & Aruan, depot E = 0,59 mg/L dan F = 0,35 mg/l. Penelitian Rosita, Fe = 0,23 mg/l. Chanir et al, hasilnya depot 1 (1,323 mg/L), depot 2 (1,280 mg/L), dan depot 3 (1,355 mg/L). Julyane dan Rahamawati, Fe tertinggi pada sampel C=0,59 mg/l. Penelitian Addise, hasilnya lima sampel melebihi standar, besi tertinggi pada sampel R04= 2,16 mg/l.

Berdasarkan hasil *literature review*, dari sepuluh jurnal menunjukkan dua jurnal tidak memenuhi syarat kandungan Cromium di atas 0,01 mg/L dan enam jurnal melebihi ambang batas besi 0,2 mg/L sesuai Peraturan Menteri Kesehatan Nomor 2 2023. Perlu menjaga kualitas depot air minum isi ulang, guna perlindungan dari risiko logam Cr dan Fe, serta perlu dilakukan pengawasan depot air isi ulang sesuai standar Permenkes.

Kata Kunci: Kromium, Besi, dan Depot Air Minum Isi Ulang.

ABSTRACT

RISK OF CROMIUM (Cr) AND IRON (Fe) METAL CONTENT IN REFILLED DRINKING WATER DEPOTS

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Drinking Water Depots are businesses that manage the provision of drinking water for public use in bulk, unpackaged form. Chromium has the potential to accumulate in organisms and can be toxic in the long term, ultimately leading to death. Consuming dissolved iron in water can cause respiratory problems, such as weakness, coughing, shortness of breath, bronchopneumonia, pulmonary edema, cyanosis, and methemoglobinemia. The goal is to determine the risks of chromium and iron metal content in refillable drinking water depots.

The research uses a literature review, data sources are obtained from national and international journals that have been published in the Google Scholar and Elicit databases in the last five years (2020–2025), accredited by Sinta with the keywords "Iron and Chromium" and "Refill drinking water depot".

There are two research journals that do not meet the Minister of Health's requirement for a maximum chromium content of 0.01 mg/l. Rahmi's research,sample A =0.1427 mg/l, B =0.0226mg/L. Ahmad and Taufiq's research, sample A = 0.02 mg/l, sample B = 0.03 mg/l, sample C = 0.04 mg/l, sample D = 0.02 mg/l, and sample E = 0.04 mg/l.

Seven journals exceeded the Fe standard, namely above 0.2 mg/L in the studyZendrato & Aruan, depot E = 0.59 mg/L and F = 0.35 mg/l. Rosita's research, Fe = 0.23 mg/l. Chanir et al, the results of depot 1 (1,323 mg/L), depot 2 (1,280 mg/L), and depot 3 (1,355 mg/L). Julyane and Rahamawati, the highest Fe in sample C = 0.59 mg/l. Addise's research,The results showed that five samples exceeded the standard, the highest iron content was in sample R04 = 2.16 mg/l.

Based on the results of the literature review, out of ten journals, two journals did not meet the requirements for Chromium content above 0.01 mg/L and six journals exceeded the iron threshold of 0.2 mg/L according to the Minister of Health Regulation Number 2 of 2023. It is necessary to maintain the quality of refillable drinking water depots, to protect against the risk of Cr and Fe metals, and it is necessary to supervise refillable water depots according to the Minister of Health Regulation standards.

Keywords: Chromium, Iron, and Refill Drinking Water Depots.