



TECHNICAL SUMMARY

CAIROX® potassium permanganate, a strong oxidizing agent, has long been used to remove contaminants from carbon dioxide formed during the fermentation process. This carbon dioxide may contain impurities such as hydrogen sulfide, mercaptans, aldehydes, esters, glycols, etc.

APPLICATION

Carbon dioxide is produced during the fermentation process. The carbon dioxide is purified and liquified for storage and later addition to the beverages before bottling. For efficient removal of impurities it is important to add an alkaline buffer. Since contact time is limited, the increased reaction rate achieved by raising the pH, is vital for effective purification. The purification process may include a water scrubber, oxidant scrubber, activated carbon, and silica gel.

CHEMISTRY

CO₂/Impurities + CAIROX → Purified CO₂ + By-Products

DOSAGE

Due to the variability of the amount of impurities in a given stream, an exact dose of CAIROX cannot be calculated. It is recommended that the facility conduct joint testing with Carus Corporation personnel to determine proper dosages.

FACILITY REQUIREMENTS

Proper mixing tanks and feed pumps compatible with CAIROX solution are required. Operators should be trained in making up the permanganate solution and in monitoring permanganate residuals. Operators should be given appropriate safety and emergency training. Methods and timing for cleaning the tower should be established early in the process to insure successful application.

BENEFITS

- Effective control of impurities in carbon dioxide.
- Safer employee working conditions
- Improved lifetime and efficiency of silica gels
- Purified Carbon Dioxide can be used in beverage industry
- Improved lifetime and efficiency of carbon polishing

REFERENCES

H.S Posselt and A. H Reidies, "Odor Abatement with Potassium Permanganate Solutions, presented at the Annual Meeting of the American Chemical Society, Chicago, Illinois, September 2, 1964.