OxyChem®

Basic Chemicals

Sodium Chlorite
Amine Odor Control

Application Description:
Amines, which may be formed in process waters during the industrial packaging of meat have a disagreeable odor, can cause nausea, and have a very high chlorine demand. They must be removed from process water prior to discharge.

Amines are the organic analog of ammonia (NH_3). Replacing a hydrogen (H) with an alkyl group (R) forms a primary amine (RNH_2); replacing two hydrogens forms a secondary amine (R_2NH); replacing three hydrogens forms a tertiary amine (R_3N). Substituting alkyl groups for hydrogen atoms increases the objectionable odor of the amine.

The reactivity of chlorine dioxide towards amines increases with the degree (amount) of substitution and pH. Chlorine dioxide does not react with ammonia and primary amines. At pH greater than 7, five parts (by weight) of chlorine dioxide oxidizes one part of secondary amine. At pH between 5 and 9, ten parts of chlorine dioxide oxidizes one part of tertiary amine.

In contrast, chlorine reacts more preferentially with ammonia than with amines. Consequently, chlorine is not cost-effective in removing these foul-smelling secondary and tertiary amines.

Alternatives:
- Perfumes or odor-masking chemicals can be used but can only hide the odor.

Advantages of Sodium Chlorite/Chlorine Dioxide:
- Chlorine dioxide is the only effective means known to destroy the amines responsible for the source of these odors.

Affected Industries:
Food Processing (Meat Packing)

Further Information
More detailed information on sodium chlorite applications is available upon request through the OxyChem Technical Services Department. Call or write to:

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