

# The Science behind Chlorine Dioxide

Smells are sometimes like onions; you must peel away the layers to find the source of the smell. Professionals face tough challenges with lots of variables. There are a wide variety of odour sources along with the subjective nature of what constitutes a “bad” odour, can complicate the process of diagnosis, treatment, and evaluation of efficacy.

Chlorine Dioxide (Clo<sub>2</sub>), is the first true advancement in odour elimination technology in decades and has paved the way to a wide variety of odour problems being eliminated permanently.

Finally, now there are advances in the technology of producing and applying Clo<sub>2</sub>, making odour elimination more effective and predictable than it has ever been before. The pros are quickly discovering that Clo<sub>2</sub> expands their capabilities and opens new profit opportunities.

Municipal water treatments have been using Clo<sub>2</sub> for decades as a widely used preferred deodorization and disinfection solution for large scale projects. Recent technological advances have made it cost effective and safer to produce Clo<sub>2</sub> for restoration jobs of any scale.

## **The Science Behind Odour Control and Clo<sub>2</sub>**

Clo<sub>2</sub> works in a chemical reaction that involves the transfer of electrons between molecules and atoms. Clo<sub>2</sub> eliminates odours through a process called oxidation.

For example, skunk spray or mercaptan smells like bad sulfur. Clo<sub>2</sub> steals electrons from the mercaptan molecule, disrupting the cell membrane and killing it permanently. Smoke odour left after a fire, organic molecule smells and even mold are no match for Clo<sub>2</sub>.

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**Clo<sub>2</sub> is SMALL!** Why does that matter? Small odour molecules, like smoke from natural materials (roughly 0.1 micron) can easily embed into surfaces making their removal very difficult. Clo<sub>2</sub> is 100x smaller than a smoke molecule. Another way of saying this, is that 80-100 Clo<sub>2</sub> molecules could fit in a smoke molecule! This makes Clo<sub>2</sub> the perfect option to oxidize the smoke residual leaving an odour free environment with no residue.

## **New Flexibility & Capability**

Since Clo<sub>2</sub> can be produced in both liquid and gas form, it is flexible to use on a wide variety of odour challenges. Liquid-form Clo<sub>2</sub> is sprayed directly on to affected areas with a fogger, spray bottles or even a mop and bucket, to soak the offending molecules. Gas-form Clo<sub>2</sub> reaches into hidden nooks and hard-to-reach areas (such as crawl spaces and attics) to eliminate unseen odour-causing molecules.

Chlorine Dioxide, the deodorizer, sanitizer, disinfectant that cannot not work and will never let you down!