



# Potassium Monopersulfate

## *Why sanitizing alone is not enough*

*When sanitizers are used to oxidize organic contaminants, their sanitizing efficiency is greatly reduced. As the level of organic contamination increases, more and more sanitizer is consumed for oxidation, so less is available for disinfection. Without regular oxidation, bather waste and other organic contaminants will continue to build up, potentially consuming sanitizing chemicals faster than they are being supplied. When this happens, water quality begins to deteriorate. Algae can develop or the water can become dull and cloudy. Most importantly, adequate protection against disease- and infection-causing microorganisms is difficult to maintain, and bather health cannot be assured.*

### **Superior performance in swimming pools and spas without the drawbacks which often accompany traditional chlorine shocking**

Potassium monopersulfate is the active ingredient in most non-chlorine shock products designed for use in swimming pools, and it's the active ingredient in essentially all non-chlorine shock products formulated for use in spas and hot tubs. It is also referred to as potassium peroxymonosulfate or, simply, monopersulfate compound.

Potassium monopersulfate is a white, granular, free-flowing powder that is ideal for applications—such as shock-treating swimming pools and spas—requiring a strong, odorless oxidizer.

Shock products containing potassium monopersulfate are oxygen-based oxidizers, so they oxidize and eliminate organic contamination without raising chlorine levels, and they will not produce irritating combined chlorine compounds known as chloramines. The result is powerful, chlorine-free oxidation (shocking) with many advantages.

### **Potassium monopersulfate plays a major role in water treatment programs for residential and public pools and spas**

There are significant differences between residential pools, public pools and spas. They differ considerably from one another in shape and size, design and utility, filtration and circulation, bather load, chemical treatment, and maintenance. However, despite these differences, the basic fundamentals of water chemistry still apply:

- **Maintain adequate sanitizer concentrations.** Proper sanitation protects bathers against disease and infection caused by harmful microorganisms.
- **Oxidize regularly with potassium monopersulfate.** Regular oxidation eliminates bather waste and other organic contaminants, thus improving the efficiency of chlorine, bromine and alternative sanitizers and producing maximum water clarity.
- **Maintain proper water balance.** Proper water balance protects recirculation equipment and pool surfaces from the damaging effects of corrosive or scale-forming water.

Potassium monopersulfate fits easily into most water treatment programs for all types of pools and spas and provides sufficient oxidation to enhance sanitizer efficiencies and produce clear, sparkling water.

## ***Potassium monopersulfate is easy to use***

*Potassium monopersulfate can be added to pool water day or night, and swimming can resume after a short waiting period to allow for adequate mixing and dispersion throughout the pool. No mixing is required—potassium monopersulfate is completely soluble in water and dissolves quickly. Broadcast monopersulfate shock slowly and uniformly over the surface of the water, adding about two-thirds of the total dose over the deep end. Shock with the filter running to ensure complete mixing and good circulation.*

### **Sanitation + Oxidation = Successful water treatment**

Sanitation refers to the use of sanitizers to disinfect pool and spa water by killing pathogenic organisms including bacteria, viruses and other microorganisms which can cause disease and infection. Effective sanitation protects bathers against these hazards.

Oxidation (shocking) involves the addition of chemical oxidizers to pool and spa water to burn up organic contamination from various sources:

- Bathers introduce a significant amount of waste through perspiration and body oils, cosmetic products, and sunscreen and suntan lotions.
- External forces like wind and rain introduce many additional contaminants.

These contaminants can build up and exert a demand on available sanitizer. Regular oxidation works together with sanitation to maintain clear, sparkling water, free from disease- and infection-causing microorganisms.

### **How to use potassium monopersulfate**

#### ***For residential swimming pools***

Potassium monopersulfate is the oxidizer of choice, whether the pool is constructed of gunite and plaster, vinyl liner, or painted concrete. It eliminates the need to shock with heavy chlorine doses which can bleach and fade vinyl liners and painted surfaces. For pools with moderate daily use, add potassium monopersulfate weekly at a dose of one pound per 10,000 gallons of pool water. More frequent and/or heavier doses may be required when bather loads are extremely heavy or following heavy rains or high winds.

Potassium monopersulfate is also an ideal oxidizer for winterizing applications. It oxidizes and destroys

contaminants and prolongs the activity of sanitizer residuals throughout the long winter months.

#### ***For public swimming pools***

Oxidizing with potassium monopersulfate offers significant advantages for public pools, particularly when dealing with the burden of heavy public pool bather loads, which result in a lot of bather waste.

Chlorine products are often used for shocking public pools, but there are serious drawbacks to using excessive chlorine. When used in heavy doses, chlorine readily reacts with many contaminants in pool water to produce foul-smelling and irritating combined chlorine compounds called chloramines. Chloramines can be simple compounds, such as monochloramine, or they can be much more complex, like the organic chloramines. Organic chloramines can be quite resistant to oxidation by free chlorine, and they can persist long after chlorine shocking.

In addition to generating irritating and persistent combined chlorine compounds, shocking with chlorine can also raise chlorine residuals to unacceptable levels, requiring dechlorination to lower the chlorine level, or requiring that the pool be closed to the public until the level of chlorine drops to an acceptable range.

Regular shocking with potassium monopersulfate provides sufficient oxidation to destroy these contaminants, thus promoting maximum sanitizer efficiency. Since monopersulfate is chlorine-free, it will not form irritating combined chlorine compounds. Potassium monopersulfate is especially well suited for indoor pools where odors and irritation from high chlorine shock doses and persistent chloramine residuals are magnified.

Public pools generally require heavier doses of oxidizer than residential pools, due to their heavier bather loads.

A good starting point is to shock weekly with one to two pounds of potassium monopersulfate per 10,000 gallons of pool water. The dose required and the shock frequency will depend largely on the bather load.

#### ***For spas***

Potassium monopersulfate has two distinct roles in spa water treatment—to oxidize bather waste and other organic contamination and to generate bromine sanitizer by oxidation of bromide ion when used with bromine products such as sodium bromide and bromine tablets (BCDMH).

The frequency of spa shocking is largely dependent upon use, but in general, spas require higher doses of oxidizer than swimming pools. Potassium monopersulfate should be added to spa water after every use, at a dose of about one to two ounces per 250 gallons, to immediately oxidize and eliminate organic contaminants introduced by bathers. Public spas which are used every day may need to oxidize with potassium monopersulfate daily.

Since many spa chemical suppliers design combination, or two-part, systems which include sanitizing and oxidizing chemicals, the best rule of thumb is to follow label recommendations for dosage requirements.

#### ***For pools and spas using bromine***

Potassium monopersulfate is widely used with sodium bromide as one part of a two-product disinfection system. In these systems, the potassium monopersulfate oxidizes, or activates, bromide ion to bromine which rapidly forms the active sanitizer hypobromous acid. Upon reaction with bacteria and other pool and spa water contaminants, hypobromous acid is reduced back to bromide ion. Bromide ion can be activated over and over again, thus recycling the active bromine sanitizer.

Potassium monopersulfate begins to produce bromine immediately and continues to do so for several hours, providing sufficient time for oxidation of bather wastes and other organic contamination. When used with bromine products such as sodium bromide and bromine tablets (BCDMH), potassium monopersulfate functions both as an activator of bromide ions and as an oxidizer of organic waste.

## ***The benefits of shocking regularly with potassium monopersulfate***

- *Promotes maximum sanitizer efficiency by oxidizing and eliminating contaminant waste*
- *Will not produce chloramines or generate irritating chloramine odors*
- *Restores sparkle and clarity*
- *Gentle on pool surfaces—dissolves quickly and completely and will not bleach or fade vinyl liners or painted surfaces*
- *Will not raise calcium hardness or increase cyanuric acid stabilizer levels*
- *Easy to use—simply broadcast uniformly over pool water surface, with filter running, to ensure complete mixing and circulation*

### **Chemical safety**

Pool and spa water treatment chemicals should be stored in cool, dry locations, tightly sealed in their original containers until ready for use. Never mix water treatment chemicals. Use all pool and spa chemicals separately and according to label instructions.

***Potassium monopersulfate is made by DuPont. It is the active ingredient in most commercially available non-chlorine shock products. Look for “potassium monopersulfate” (or “potassium peroxymonosulfate”) on the label.***

**For distribution or technical information  
on potassium monopersulfate, contact:**

**(phone) 888-243-4608**

**(fax) 302-892-1456**



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