



## Eye Irritation Causes

The two main causes of eye irritation are:

**Chloramines** (combined chlorine determined by the difference between free available chlorine and Total chlorine). When combined chlorine is  $>0.2$  ppm eye irritation can occur. Also when combined chlorine is that high it is time to shock.

Shocking is not based on the calendar, it is based on testing the water. It is time to shock or superchlorinate when the combined chlorine level is 0.2 ppm or above. Combined chlorine is determined by making a free available chlorine (FAC) test and a total available chlorine (TAC) test and subtracting FAC from TAC. If the difference is greater than 0.2 ppm, it is time to superchlorinate or shock. To destroy the combined chlorine you will need to add chlorine at the rate of 10 times the combined chlorine. As an example, if your combined chlorine was 0.4 ppm then you would need to add 4.0 ppm of free chlorine. This will destroy the combined chlorine and leave you with an FAC of about 2 ppm. If you use non-chlorine shock just add 1 lb. per 10,000 gallons of water. This will destroy up to 1.0 ppm of combined chlorine.

pH. The eye has a pH of between 7.35 and 7.45. Any pH value  $>.3$  either way from this range can create eye, mucous membrane and throat irritation. Skin irritation occurs at values farther from these. The pH of your blood for instance is 7.35 to 7.45. Below this range is a condition called acidosis. Above this range is called alkalosis.

Some people have sensitivity to various shocking chemicals like monopersulfate or sodium persulfate, algacides like copper-based ones, even high or low alkalinity or calcium hardness although these are rare.

**Bromamines** (like chloramines only formed from bromine and ammonia) can also be eye irritants and it is difficult to measure them because there are no field test for free and total bromine - only total.