

Mason Color offers pigments to use in many applications in the pool industry and feel the pigments can withstand degradation caused by chemicals used in maintaining pools. We chose two other types of pigments we feel may be used in the pool industry. It is our goal in the following testing to show limited degradation to **7389 Catalina** versus the other two pigments. 7389 Catalina is the Mason Color pigment that has been developed as the base chemistry having the properties withstand degradation.

Sodium Bisulfate (pH Minus) was used to control the pH. The Chlorine was controlled to the level of 3.0. As you can see the lower the pH the more degradation there was on the Ultramarine Pigment. There was very little degradation in both the Hybrid and **7389 Catalina**. We chose the samples with the pH of 5.0 to continue our testing.

Trichloro-s-triazinetrione (Trichloro) (Chlorine stabilizer) was used to control the chlorine level. The pH varied on the acid side as the level of chlorine increased. The sample with the chlorine level 4.0 was selected for further testing for all the pigments. Visibly there was noticeable degradation in the Ultramarine and very little on the Hybrid Pigment. The **7389 Catalina** seemed stable.

Calcium Hypochlorite (Shock) was used to control the chlorine level. The pH varied on the alkaline side as the level of chlorine increased. There was minimal degradation with the three samples. The sample with the chlorine level 4.0 was selected for further testing.

Distilled water is being used to show the pigments saturated with no chemicals. We expect no degradation.

ULTRAMARINE BLUE

DISTILLED WATER



SODIUM BISULFATE



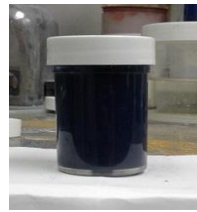
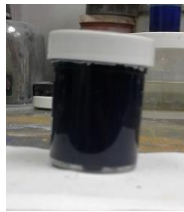
TRICHLORO



CALCIUM HYPOCHLORITE



HYBRID BLUE PIGMENT



7389 CATALINA



We decided to dry the saturated pigments to record the degradation. We dried each pigment and measured the results with a colorimeter.

The following table shows the amount of degradation each chemical can cause to each pigment. The chemicals seemed to have affected the Ultramarine and Hybrid but the **7389 Catalina** appeared very stable.

ULTRAMARINE BLUE

	Distilled Water	Sodium Bisulfate	Trichloro	Calcium Hypochlorite
L	35.00	34.49	32.2	34.35
a	23.30	18.64	22.2	21.45
b	-69.5	-57.2	-63.7	-65.24

HYBRID BLUE PIGMENT

	Distilled Water	Sodium Bisulfate	Trichloro	Calcium Hypochlorite
L	29.90	30.1	29.6	29.3
a	2.90	2.6	2.9	2.9
b	-14.60	-14.7	-15.7	-15.5

7389 CATALINA

	Distilled Water	Sodium Bisulfate	Trichloro	Calcium Hypochlorite
L	41.50	41.00	41.4	41.3
a	11.60	11.8	11.3	11.3
b	-52.50	-52.1	-51.8	-51.8

We decided to take these retains and apply them to a draw down paint test. The table below shows each pigment in a solution transferred to a paper substrate. The color values are on the bottom right side of each figure.

ULTRAMARINE BLUE

Distilled Water



L= 53.0
a= 7.1
b= -43.5

Sodium Bisulfate



L= 58.1
a= 4.6
b= -33.5

Trichloro



L= 55.3
a= 6.0
b= -38.1

Calcium Hypochlorite



L= 53.1
a= 6.3
b= -42.5

HYBRID BLUE PIGMENT

Distilled Water



L= 47.2
a= -0.2
b= -14.6

Sodium Bisulfate



L= 50.8
a= -0.7
b= -15.2

Trichloro



L= 49.2
a= -0.3
b= -15.3

Calcium Hypochlorite



L= 48.5
a= -0.2
b= -15.3

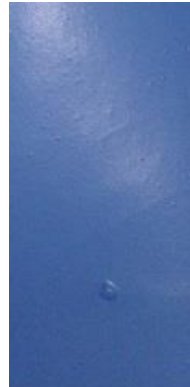
7389 CATALINA

Distilled Water



L= 52.3
a= 5.3
b= -42.7

Sodium Bisulfate



L= 51.6
a= 5.6
b= -43.1

Trichloro



L= 51.5
a= 5.7
b= -43.3

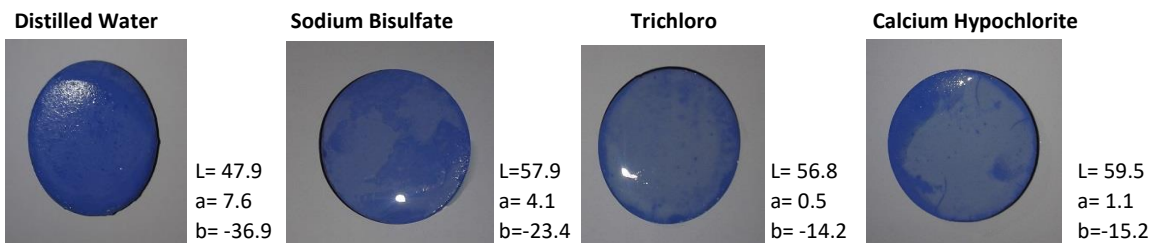
Calcium Hypochlorite



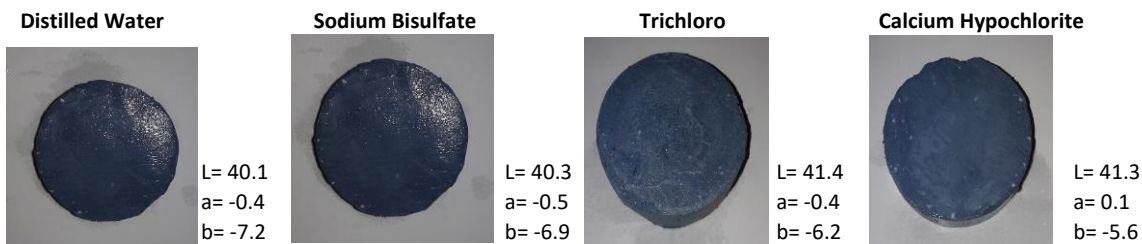
L= 51.8
a= 4.8
b= -42.5

The following images are actual cement cakes that have been soaking in distilled water and the three chemical solutions for a week. We expected the cakes soaking in the distilled water to have very little to no degradation. As the images show with the Ultramarine blue, there is quite a contrast of the three cakes soaking in the chemical solution versus the one soaking in the distilled water. The Hybrid Blue images show a slight degradation in each case. The sodium bisulfate lost some blue value but not enough for concern. The chlorine products caused the cakes to lose strength and blue value. The **7389 Catalina** shows consistency in every solution.

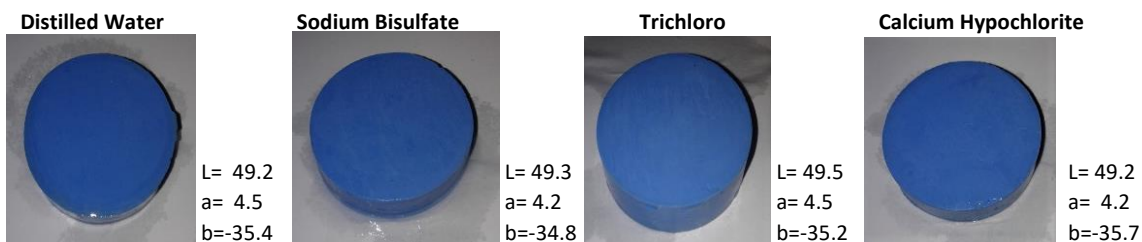
ULTRAMARINE BLUE



HYBRID BLUE PIGMENT



7389 CATALINA



We have concluded that the chemistry of **7389 Catalina** has the properties to withstand the adverse conditions in treating swimming pools. Mason Color feels confident the pigments developed based on the same chemistry will perform just as good as the performance of **7389 Catalina**.