



**Technologies**

## TECHNICAL BULLETIN

ABN: 82 001 302 996  
135-141 Canterbury Road, Kilsyth Victoria 3137  
Phone : (613) 9728 7200 Fax : (613) 9761 7179

# COLORMAX 9000L

## Stannous Based Electrolytic Colouring Process

### 1. DESCRIPTION:

**COLORMAX 9000L** is a new generation electrolytic colour bath, liquid concentrate. **COLORMAX 9000L**, with its unique and high quality ingredients, provides excellent throwing power and optimum colour uniformity. **COLORMAX 9000L** provides rich, deep colors, in shorter time than normally obtained from conventional coloring baths. **COLORMAX 9000L** is designed to be used with stainless steel or graphite counter electrode systems. Aluminum is first anodized in a controlled sulphuric acid electrolyte, under proper conditions. Consequently the anodized aluminum is treated in a **COLORMAX 9000L** bath using an AC power source to achieve a wide spectrum of colours ranging from champagne to black in minimum coloring time.

### 2. HANDLING CHARACTERISTICS:

**COLORMAX 9000L** contains highly acidic materials and is corrosive. Contact with the skin or eyes may cause irritation or burns. The same safety precautions should be observed as when handling mineral acids. Personnel should wear eye protection, NIOSH approved air mask, rubber gloves and apron or other protective clothing when working with **COLORMAX 9000L**. Tanks used for **COLORMAX 9000L** should be provided with an adequate exhaust system to protect workers against irritating or corrosive airborne contaminants. Material Safety Data Sheets are available upon request from Henkel Technologies.

### 3. EQUIPMENT RECOMMENDATIONS:

The electrolytic colour tank can be made of stainless steel or concrete with a lining of acid resistant, non-conducting material. PVC, polypropylene or other acid resistant materials can be used for lining, or as a stand-alone tank.

### 4. OPERATING INSTRUCTIONS:

<b>COLORMAX 9000L:</b>	9-11% by volume
<b>COLORMAX 9000A:</b>	3-5 g/L
<b>COLORMAX 9000C:</b>	10-12 g/L
Sulphuric acid:	19-21 g/L

A. Procedure for a new bath charge up:

1. Add enough water to fill 75% of the tank capacity. Turn the air agitation on.
2. Slowly and carefully add the equivalent of 15 g/L of concentrated Sulphuric acid.
3. Add 4 g/L of **COLORMAX 9000A** in small increments throughout the tank for better mixing. Continue with the air agitation.
4. Add the equivalent of 10 g/L of **COLORMAX 9000C** throughout the tank.
5. Add 9 to 11% by volume of **COLORMAX 9000L**. Add enough water to fill the tank to its capacity. Mix the solution well.
6. Take a sample to the laboratory and determine the concentration of **COLORMAX 9000L**. In addition, determine the concentration of sulphuric acid according to the procedure in the Technical Process Bulletin. Determine the amount of acid required to bring the acid concentration to 20 g/L according to the following equation:

Number of kg H<sub>2</sub>SO<sub>4</sub> required per 1000 Litres of solution = (20 - current acid value in g/L).

B. Operating Bath:

<b>COLORMAX 9000L:</b>	9 - 11% (v/v)
<b>COLORMAX 9000A:</b>	1.2 kg per 100L of <b>COLORMAX 9000L</b>
H <sub>2</sub> SO <sub>4</sub>	19 - 21 g/L

All ingredients are added directly to the existing bath with mechanical agitation to aid mixing.

For more details regarding the Two-Step Electrolytic Colour Process, please contact your Technical Sales representative in your State.

**5. SOLUTION CONTROL:**A. Concentration Control Procedure:

1. To a 250 mL Erlenmeyer flask add, in order, 100 mL water, 5 mL of conc. Hydrochloric acid (HC1), approximately 3g Starch Indicator and 10 mL of the Stannous ion bath.
2. Titrate with 0.1N Iodine until the solution changes from clear to blue. Record the number of mL of 0.1N Iodine required.
3. CALCULATIONS:

$$\% \text{ by volume } \mathbf{COLORMAX 9000L} = (\text{mL of } 0.1\mathbf{N} \text{ Iodine}) \times 0.613$$

B. Acidity Control Procedure for the Color Bath:

1. To a 400 mL beaker, add 200 mL water and 50 mL of the **COLORMAX 9000L** bath.
2. Using the pH meter, which has been carefully standardized with pH 4.0 and pH 2.0 standard Buffer solutions, Titrate with 1.0N Sodium hydroxide until the pH rises to 2.10. Record the volume.
3. CALCULATIONS:

$$\begin{aligned} \text{Factor} &= 0.98 \\ \text{g/L Acidity} &= (\text{mL titrant}) \times 0.98 \end{aligned}$$

Note:

The acidity of the bath should be controlled between 19 - 21 g/L.

Note:

Submit sample of bath to Technical Service Department for this analysis. Consult your Henkel representative for correct shipping information.

**6. STORAGE:**

**COLORMAX 9000L** should be stored in a dry area away from oxidizing material and alkalis. Keep container tightly closed when not in use. KEEP FROM FREEZING. Store above 0°C.

**7. WASTE DISPOSAL:**

**COLORMAX 9000L** may require neutralization to a specified pH range depending on State and Local waste treatment regulations.

**8. PRECAUTIONS****COLORMAX 9000L**

**DANGER: CORROSIVE! MAY CAUSE SEVERE BURNS TO EYES AND SKIN. HARMFUL IF SWALLOWED.**

Contains Stannous Sulfate. Avoid contact with eyes, skin, and clothing. Avoid breathing vapours or mists.

**FIRST AID:**

Ingestion: Do not take internally. If swallowed, dilute by drinking large quantities of water or milk. DO NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. GET MEDICAL ATTENTION IMMEDIATELY.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, raising upper and lower lids periodically. GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush with plenty of water for at least 15 minutes. If irritation or burns are present, GET MEDICAL ATTENTION IMMEDIATELY.

**8. PRECAUTIONS cont...****COLORMAX 9000C****DANGER: MAY CAUSE SEVERE IRRITATION OR BURNS**

Contains Sulfuric Acid. Avoid contact with eyes, skin, and clothing. Avoid breathing dusts.

**FIRST AID:**

Ingestion: Do not take internally. If swallowed, dilute by drinking large quantities of water or milk. DO NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. GET MEDICAL ATTENTION IMMEDIATELY.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, raising upper and lower lids periodically. GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush with plenty of water for at least 15 minutes. or burns are present, GET MEDICAL ATTENTION IMMEDIATELY.

**COLORMAX 9000A****DANGER: HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION.**

Contains synthetic organic material. Avoid contact with eyes, skin, and clothing. Avoid breathing dusts.

**FIRST AID:**

Ingestion: Do not take internally. If swallowed, dilute by drinking large quantities of water or milk. DO NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. GET MEDICAL ATTENTION IMMEDIATELY.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes. If irritation occurs, GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush with plenty of water for at least 15 minutes. If irritation or burns occur, GET MEDICAL ATTENTION.

**KEEP OUT OF REACH OF CHILDREN**

**ATTENTION:** When empty, containers will still be hazardous because of product residue. All labelled hazard precautions must be observed.

**9. TESTING REAGENTS AND APPARATUS**

(Order only those items which are not already on hand.)

	<u>Qty.</u>	<u>Item</u>
#	1	Burette assembly, 25 mL automatic
# *	2	Flask, Erlenmeyer, 250 mL
#	1	Indicator dropping bottle for starch indicator
#	1	50 mL volumetric pipette (Fisher Cat. No. 13-6505) or equivalent
# *	2	Pipette, 10 mL volumetric
#	1	Pipette filler
	1L	Hydrochloric Acid (HCl) Conc./ (Reagent Solution 49)
	100g	Starch Indicator Solution (Indicator 10)
	1 L	0.1N Iodine (Titration Solution 50)
	5 L	pH 1.67 Buffer (Buffer Solution pH 1.67)
	0.5 L	pH 4.0 Buffer (Buffer Solution 4)
	5 L	1.0N Sodium Hydroxide (Titrating Solution 89)

\* Includes one more than actually required, to allow for possible breakage.

# Not supplied by Henkel Australia

**DISCLAIMER**

Any information given is, to the best of our knowledge, the best currently available, with respect to our products and their use, but it subject to revision as additional knowledge and experience is gained. Such information is offered as a guideline for experimentation only and is not to be construed as a representation that the material is suitable for any particular purpose or use. Customers are encouraged to make their own enquiries as to the material's characteristics and, where appropriate, to conduct their own tests in the specific context of the material's intended use. This information is not a license to operate under nor is it intended to suggest infringement of any patent. We guarantee a uniform quality standard for this product. The only conditions and warranties accepted by Henkel in relation to this product or process are those implied by either Commonwealth or State statutes.