

CONDORCOAT AL 64

Chromfree passivation for galvanized, aluminium and alloys

DESCRIPTION CONDORCOAT AL 64 is a chrome free, non-phosphate liquid coating chemical used to produce on aluminum and zinc alloys a clear, nearly colorless, chemical Dried-In- Place (DIP) coating. The coating, when properly applied, has excellent paint bonding properties and affords under film protection.

CONDORCOAT AL 64 contains titanium, cobalt and fluorides.

CONDORCOAT AL 64 is used at room temperature (18-35°C).

CONDORCOAT AL 64 can be used both in spray and dip applications

CONDORCOAT AL 64 will give a transparent, slight colored coating on the surface.

MAKE-UP

For each unit volume of bath, add to the water with stirring:

100 gallons

1000 liters

CONDORCOAT AL 64

1,5 to 4 gallons

15 to 40 liters

Fill the tank with DI-water (< 20 µS/cm) and then add the **CONDORCOAT AL 64**. Mix until the product is in solution.

NOTE: Concentration ranges are based on customer needs and preferences and can differ from plant to plant.

EQUIPMENT

The work is processed either in conventional power spray equipment or in dip plants. The equipment for the **CONDORCOAT AL 64** coating chemical stage should be constructed of stainless steel (type 304 or 316 preferred for weld ability), or plastic.

All heated tanks should be equipped with steam plate coils and side heating preferred for a more even temperature distribution) or other heat sources capable of rapidly heating the bath to the specified temperature. Addition of heat is generally not needed.

Acid resistant crates, baskets, tumbling barrels and conveyors should be provided to carry the work through the various stages.

Agitation in form of circulation is recommended for dip tanks. Vigorous air agitation should be avoided as it will affect the components in the bath.

OPERATING DATA

Control Points (for normal operating conditions):

Chemical titration	15-40 ml/l
Conductivity	250-800 μ S/cm
Temperature	64°F (18°C) to 95°F (35°C)
pH	3-4
Spray time	2 to 30 seconds
Immersion time	2 to 30 seconds

The concentration ranges of the CONDORCOAT AL 64 coating chemicals listed under section **MAKE-UP** are intended for the majority of line conditions. However, plant variables such as line speed, spray time and part length may require the control points to be changed.

MAINTENANCE

The **CONDORCOAT AL 64** coating chemical bath is manually controlled in the plant by a coating chemical titration that determines the need for replenishment. The bath can also be controlled by measure the conductivity of the solution.

Methods are described in section **ANALYTICAL CONTROL**.

The pH should be maintained between 3 and 4.

ANALYTICAL CONTROL

1. Coating Chemical Titration

- Pipette 100 ml of the CONDORCOAT AL 64 bath into a 250 ml Erlenmeyer flask. Rinse with distilled or demonized water
- Add six to eight drops of Indicator Brom Phenol Blue.
- Fill the burette to the zero mark with 0,1 N Sodium Hydroxide while swirling the flask.
- Add 0,1 N Sodium Hydroxide slowly until a slight reddish purple color develops from the pale blue color. The change I color must remain in 20 sec
- Record the number of milliliters of 0,1 N Sodium Hydroxide

$$X \text{ ml } 0.1 \text{ NaOH} \times 15,2 = \text{ml/l } \text{CONDORCOAT AL 64}$$

NOTE:

Detection of the endpoint of the coating chemical titration is much easier over a white background in good light.

2. Reaction Product Titration

- Pipette 10 ml of the CONDORCOAT AL 64 bath into a 250 ml Erlenmeyer flask. Rinse with distilled or deionized water.
- Add six to eight drops of Indicator Phenolphthalein.
- Fill the burette to the zero mark with 0,1 N Sodium Hydroxide.
- While swirling the flask, add 0,1 N Sodium Hydroxide slowly until a light pink color appears and remains pink for at least 20 seconds. Record the number of milliliters of 0,1 N Sodium Hydroxide as the Reaction Product Titration.

If the Reaction Products Titration exceeds 4,0 ml bath stabilization is required. This can be accomplished by continually overflowing the bath at a controlled rate or by discarding a portion of the bath on a scheduled basis.

The pH of the CONDORCOAT AL 64 bath should be maintained between 3,0 and 4,0. If the pH is lower or higher than the specified range then the bath has to be changed.

3. Conductivity

The concentration of CONDORCOAT AL 64 is proportional to the conductivity of the solution. Note that conductivity values are affected of drag in of salts and other contaminants. Follow the instructions in the user manual in operating conduction

PROCESS CYCLE

Recommended process

Clean	Alkaline cleaner
Rinse	
Activation	Acid deoxidizer
Rinse	
Passivation	CONDORCOAT AL 64
Drying	

The work, after processing and drying, is ready to be painted.

NOTE: Rinsing is normally not required after application of the CONDORCOAT AL 64. In applications where high coating weights are obtained for example due to poor drain off a rinse with DI water (<20 µS/cm) can be applied

Parts coming from the coating bath should be dried in an indirectly fired oven or by other means, which will not contaminate the treated metal with fumes, oil, or partially burnt gas.

SURFACE PRE-PARATION

For most applications an alkaline cleaner is recommended. If the work is heavily soiled and additional cleaning power is needed. The deoxidizer acid is used for removes the oxides on the die casting surface.

After cleaning the work should be thoroughly rinsed with water. The rinse should be continuously overflowed to avoid contamination. Drag-over of cleaner to the chrome free stage should be minimized.

STORAGE

CONDORCOAT AL 64 coating chemical should be stored in clean, dry cool (max 30°C) areas.

It should be protected from freezing. If freezing occurs, thaw and mix well.

The freezing point of the CONDORCOAT AL 64 is 32°F, 0°C.

DISPOSAL

Process solutions containing **CONDORCOAT AL 64** coating chemical contains small amounts of titanium, cobalt and fluoride. pH-value is between 3-4. Spent process chemical, concentrates and rinses must be treated according to local regulations.

HEALTH HAZARD

CONDORCOAT AL 64 is not classified according to EU legislation.

Normal precautions when handling industrial chemicals are recommended.

Operators handling the CONDORCOAT AL 64 coating chemicals should be equipped with rubber gloves and face shield. The coating bath and the concentrated coating chemicals should be flushed from the skin with water.