

# A "How-to" Guide to the Use of ACTIV-8<sup>®</sup> Drier, Stabilizer and Accelerator

# An easy to follow, step-by-step guide to the use of **ACTIV-8** and metallic driers

**ACTIV-8**<sup>®</sup> Drier, Stabilizer and Accelerator is a 38% solution of 1,10-Phenanthroline, a chelating agent. When used with cobalt or manganese driers, **ACTIV-8** accelerates and stabilizes the drying rates of solvent-borne and waterborne coatings that cure by oxidative polymerization.

To determine the optimum amount of driers and **ACTIV-8**, surface dry, through dry, and hard dry must be balanced. This can be achieved by a mixture of cobalt and/or manganese plus **ACTIV-8**. The amount of **ACTIV-8** required is based **only** on the amounts of cobalt and/or manganese metal. The auxiliary driers are not affected by **ACTIV-8**. A general rule is that manganese/**ACTIV-8** provides the best surface dry while cobalt/**ACTIV-8** provides the best hard dry.

NOTE: **ACTIV-8** should not be used in a coating containing zinc drier or zinc oxide as an undesirable white compound will form that does not aid in drying. **ACTIV-8** should not be used with iron driers, since **ACTIV-8** plus iron produces a strong pink discoloration.

#### Determining the Amount of ACTIV-8 to Use

It is very important to accurately determine the amount of driers and **ACTIV-8** to be used in a given coating. The three step procedure used to determine the amount of **ACTIV-8** required is as follows:

#### STEP 1: Determine the amount of resin solids in the coating formula

**Example:** For 195 lb. of alkyd resin solution containing 90% non-volatile solids, determine the amount of resin solids.

amount of resin x percent non-volatile solids / 100 = resin solids 195 lb. x 90 / 100 = 175 lb. resin solids

#### STEP 2: Determine the amount of metallic drier to be used

Driers are supplied as solutions of metallic salts of long chain organic acids in various solvents. Their concentrations are expressed as *% metal*. Recommended amounts of driers for typical air dry coatings based on resin solids are:

Cobalt 0.02 - 0.05% Manganese 0.02 - 0.06%

**Example:** For the 175 lb. of resin solids in STEP 1, determine the amount of a 12% cobalt solution that is needed to achieve 0.05% cobalt metal based on resin solids.

amount of resin solids x percent metal / 100 = amount of cobalt metal 175 lb. resin solids x 0.05 / 100 = 0.0875 lb. cobalt metal

#### STEP 3: Determine the amount of ACTIV-8® Drier, Stabilizer and Accelerator to use

For solvent-borne alkyds, **ACTIV-8** is used at a ratio of 10 parts **ACTIV-8** (as received) to 1 part cobalt metal. For water-reducible alkyds, a ratio of 5:1 is recommended.

**Example:** Given that there is 0.0875 lb. of cobalt metal, determine the amount of **ACTIV-8** to use.

amount of metal x 10 = amount **ACTIV-8** 0.0875 lb. x 10 = 0.875 lb. **ACTIV-8** 

Next, prepare a series of paints at various drier concentrations and then run dry time testing. Consult your resin supplier for starting formulas and drier recommendations with regard to the resin.

### Suggested Formulas for Drier plus ACTIV-8<sup>®</sup> Drier, Stabilizer and Accelerator Pre-Blends

Drier efficiency, resistance to loss of dry on aging, and resistance to yellowing can be improved by pre-blending the driers and **ACTIV-8** in a suitable solvent and letting the preblend age at least 1 hour prior to addition to the coating. Two formulas for drier plus **ACTIV-8** pre-blends follow.

#### 1. For coatings based on alkyd binders in organic solvent

Component	% by Weight
<i>n</i> -Butanol	32.7
Xylene	32.6
ACTIV-8	13.0
6% Mn Solution (1.3% Mn metal)	21.7

Add ACTIV-8 and Mn solution to solvent, age at least 1 hour.

#### 2. For coatings based on emulsions or water-reducible alkyd binders

Component	% by Weight	
Hexylene glycol	68.0	
ACTIV-8 HGL	12.0	
6% Co Solution (1.2% Co metal)	20.0	
Add ACTIV 9 and Co solution to	a alvant aga at	1

Add **ACTIV-8** and Co solution to solvent, age at least 1 hour.

## For more information on the use of ACTIV-8, including technical data and formularies, go to www.vanderbiltminerals.com.

Registered and pending trademarks appearing in these materials are those of Vanderbilt Minerals, LLC. For a complete listing, please visit Trademark Listing.

Revised November 2016

Before using, read, understand and comply with the information and precautions in the Safety Data Sheets, label and other product literature. The information presented herein, while not guaranteed, was prepared by technical personnel and, to the best of our knowledge and belief, is true and accurate as of the date hereof. No warranty, representation or guarantee, express or implied, is made regarding accuracy, performance, stability, reliability or use. This information is not intended to be all-inclusive, because the manner and conditions of use, handling, storage and other factors may involve other or additional safety or performance considerations. The user is responsible for determining the suitability of any material for a specific purpose and for adopting such safety precautions as may be required. Vanderbilt Minerals, LLC does not warrant the results to be obtained in using any material, and disclaims all liability with respect to the use, handling or further processing of any such material. No suggestion for use is intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patent, trademark or copyright or to violate any federal, state or local law or regulation.