

INDUSTRIAL WATER-BASED PAINT FORMULATIONS

by

Ernest W. Flick

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Preface

This collection of 220 up-to-date water-based industrial paint formulations will be of value to technical and managerial personnel in paint manufacturing companies, firms which supply raw materials or services to these companies, and those generally interested in less hazardous, environmentally safer formulations. The book will be useful to those with extensive experience as well as those new to the field.

The data consist of selections of manufacturers' suggested formulations made at no cost to, nor influence from, the makers or distributors of these materials. The information given is presented as supplied. The manufacturer should be contacted if there are any questions. Only the most recent data supplied us has been included. Any solvent contained is minimal.

The table of contents is organized in such a way as to serve as a subject index. The book is divided into the following Sections.

- I. Air dry coatings
- II. Air dry or force dry coatings
- III. Anti-skid or non-slip coatings
- IV. Bake dry coatings
- V. Clear coatings
- VI. Coil coatings
- VII. Concrete coatings
- VIII. Dipping enamels
- IX. Lacquers
- X. Primers
- XI. Protective coatings
- XII. Spray enamels
- XIII. Topcoats
- XIV. Traffic and airfield paints
- XV. Miscellaneous

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In addition to the above, there are two other Sections which will be helpful to the reader:

- XVI. A chemical trade name section where trade-named raw materials are listed with a chemical description and the supplier's name. The specifications which the raw materials meet are included, if applicable.
- XVII. Main office addresses of the suppliers of trade-named raw materials.

Included in the descriptive information for each formulation, where available, the following may be listed:

1. Type of paint or coating
2. End use
3. Ingredients, by weight and/or volume
4. Mixing suggestions
5. Properties such as viscosity, total solids (by weight and/or volume), gloss, pencil hardness, pH, nonvolatiles, pigment/binder ratio, density, flash point, adhesion
6. Formulation source

Each formula is indexed in the Section which is most applicable. The reader, if seeking a formula, for a specific end use, should check each Section which could possibly apply.

Ernest W. Flick

NOTICE

To the best of our knowledge the information in this publication is accurate; however the Publisher does not assume any responsibility or liability for the accuracy or completeness of, or consequences arising from, such information. This industrial guide does not purport to contain detailed user instructions, and by its range and scope could not possibly do so. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the Author or Publisher.

Industrial water-based paint raw materials could be toxic, and therefore due caution should always be exercised in the use of these hazardous materials. Final determination of the suitability of any information or product for use contemplated by any user, and the manner of that use, is the sole responsibility of the user. We strongly recommend that users seek and adhere to a manufacturer's or supplier's current instructions for handling each material they use.

The Author and Publisher have used their best efforts to include only the most recent data available. The reader is cautioned to consult the supplier in case of questions regarding current availability.

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Section I

Air Dry Coatings

2 Industrial Water-Based Paint Formulations

INDUSTRIAL ORANGE FLOW COATING ENAMEL BASED ON NEOCRYL A-630 Formulation 087

Materials	Lbs.	Gals.
Grind Paste		
NEOCRYL A-630 (44% NV)	107.44	12.64
Tamol 165	5.02	.57
Triton CF-10	2.02	.23
Water	13.48	1.62
Witco 3056A	1.35	.18
X-2813 Rex Red Orange	63.99	1.35
Red Iron Oxide R-4098	26.96	.63
Butyl Cellosolve	16.82	2.24

Sand Mill Grind to a 7+ Fineness of Grind

Mill Wash

Water	) Premix	4.99	.60
A-630	)	16.83	1.98

Let Down

NEOCRYL A-630		356.41	41.93
Butyl Cellosolve)		64.81	8.63
Water	)	201.59	24.23
DMEA	) Premix	14.59	2.02
Troy's Q154	)	7.41	.95
Byketol OK	)	1.48	.20

Formulation Constants

% Nonvolatile (wt.)	33.4%
pH	9.8
Pigment/Binder Ratio	30/70
Viscosity #4 Ford	42 sec
Density, wt./gal., 25C	9.1 lbs./gal.
Mechanical Stability	Excellent

SOURCE: POLYVINYL CHEMICALS, INC.: Formulation 087

TITANATE MODIFIED IMPLEMENT ENAMEL

MATERIALSWS-549 BASED

Alkyd Resin (75% NVM)	326.0
Ammonium Hydroxide (28%)	15.0
Organic Titanate (2)	15.0
Drier Accelerator (3)	1.0
Anti-Skin Agent (4)	1.0
Water	601.2
Titanium Dioxide (5)	219.8
Flow Agent (6)	0.5

- 2) TYZOR TE Organic Titanate
- 3) ACTIV-8
- 4) EXKIN No. 2
- 5) TIPURE R-900
- 6) FC-430

SOLUTION PROPERTIES

pH	8.6
Spray Viscosity, No. 4 Ford Cup, sec	39
NVM, %	40.5

Drying characteristics--21+-1C (70+-2F), 50% RH	
Set to touch, min	16
Tack Free, min	31
Dry Hard, hr	2-1/2

SOURCE: AMOCO CHEMICALS CORP.: FAST AIR DRYING WATER-SOLUBLE
IMPLEMENT ENAMELS: Formulation Table IV

4 Industrial Water-Based Paint Formulations

TITANATE MODIFIED IMPLEMENT ENAMEL

<u>MATERIALS</u>	<u>WS-5490 BASED</u>
Alkyd Resin (75% NVM)	326.0
Ammonium Hydroxide (28%)	15.0
Organic Titanate (2)	15.0
Drier Accelerator (3)	1.0
Anti-Skin Agent (4)	1.0
Water	553.8
Titanium Dioxide (5)	219.8
Flow Agent (6)	0.5

- 2) TYZOR TE Organic Titanate
- 3) ACTIV-8
- 4) EXKIN No. 2
- 5) TIPURE R-900
- 6) FC-430

SOLUTION PROPERTIES

pH	8.0
Spray Viscosity, No. 4 Ford Cup, sec	38
NVM, %	42.2

Drying characteristics--21+-1C (70+-2F), 50% RH	
Set to touch, min	13
Tack Free, min	29
Dry Hard, hr	2-1/4

SOURCE: AMOCO CHEMICALS CORP.: FAST AIR DRYING WATER-SOLUBLE
IMPLEMENT ENAMELS: Formulation Table IV