

The logo for Delta, featuring the word "delta" in a lowercase, bold, sans-serif font. The letter "o" is stylized with a pink-to-purple gradient fill.

little makes difference

• **DELTA SC<sup>®</sup>**  
*Surface Control Additives*

• **MORDRY<sup>®</sup>**  
*Driers*

• **DELTA FC<sup>®</sup>**  
*Foam Control Additives*

• **DELTA DC<sup>®</sup>**  
*Dispersion Control Additives*

• **DELTA S<sup>®</sup>**  
**MORDRY<sup>®</sup>**  
*Specialty Additives*



# Specialty Additives

This range represents specialty additives with unique chemistries and exceptional technical features.



# Multi-Purpose Additives

## DELTA S<sup>®</sup> 5220 & DELTA S<sup>®</sup> 5225

**DELTA S<sup>®</sup> 5220 and DELTA S<sup>®</sup> 5225 are multi-functional additives, both can be used as:**

- Color acceptance improver
- Dispersant of choice for transparent iron oxides

**DELTA S<sup>®</sup> 5225** can be used as sole dispersion control additive for the manufacturing of universal colorants.

**DELTA S<sup>®</sup> 5220** is excellent dispersion control additive for inorganic pigments and extenders in water and solvent-based systems, also for preparation of slurries and matting agent dispersions.

Both **DELTA S<sup>®</sup> 5225** and **DELTA S<sup>®</sup> 5220** are 100% active, APE-free dispersion control additives. They are based on unsaturated fatty acids having polar tertiary amines heads.

The hydrophobic chains have unsaturated character which allows the additive to be liquid at room temperature (easy handling).

In addition, the 'unsaturation' provides drying properties by cross-linking in the presence of oxygen.

The anchoring groups used in **DELTA S<sup>®</sup> 5225** are similar to those of our high molecular weight dispersion control additives (**DELTA DC<sup>®</sup> 3000** series) and hence have strong affinity towards pigment surfaces (inorganic, organic and carbon black pigments).

**DELTA S<sup>®</sup> 5220** has special anchoring groups allowing the additive to drastically reduce the viscosity of inorganic pigments and extenders.

Slurries and highly pigmented iron oxide or titanium dioxide pastes can be prepared by using one single dispersion control additive.

### Colour Acceptance Improvement

It is possible to improve colour acceptance of base paints (solvent and water-based paints) when using both **DELTA S<sup>®</sup> 5225** or **DELTA S<sup>®</sup> 5220** as post-additives by preventing the 'de-wetting' of surfactants (surfactant stripping) used for the formulation of universal colorants.

0.5-1.5 parts by weight of either **DELTA S<sup>®</sup> 5225** or **DELTA S<sup>®</sup> 5220** into the white base paint (alkyd or emulsion base) can make a world of difference.



# Universal Colorants for Architectural Paints

Production of colorants is essential for tinting of the architectural paints. Ideally these universal tinting pastes should be compatible with water-based as well as solvent-based paints.

With **DELTA S® 5225**, you can from now onward formulate your 16 colorants without any resin and with only one dispersion control additive. Making universal colorants has never been so easy!

Given its unique chemistry and the absence of any carrier, **DELTA S® 5225** will enable customers to:

- Meet the stringent VOC restrictions in place today.
- Comply with the current and anticipated requirements in terms of APEs (Aryl phenylethoxylates) and environmental aspects.

In view of the future environmental legislation and increased health and safety awareness, more and more paint manufacturers in the Middle East market will opt for APE-free products.

Due to many construction projects in the pipeline and the unusual and fast growth in the DIY (Do-It- Yourself) concept, demand for both interior and exterior paints from end-consumers in the Middle East will witness a steady increase in the coming years.

**DELTA S® 5225** will enable paint manufacturers to formulate environmentally friendly colorants, with no APE raw materials and lowered or no VOC content.

The following formulations, developed for in-plant tinting have been tested in our technical service laboratory in various white base paints (water and solvent-based) from different manufacturers in the Middle East. Their compatibility and stability over time are just stunning.

PC 23 Violet	PG 36 Low Green	PBK 7/PY 42 /PR 101 Amber	PY 83 Orange Yellow	PY 42 Yellow Oxide	PR 112 Red	PR 168 Orange Red	PB 15:4 Low Blue
PY 74 Yellow High	PG 7 High Green	PR 122 Magenta	PB 15:3 High Blue	PY 138 Yellow Low	PW 6 White	PBK 7 Black	PR 101 Red Oxide

	PY 74	PB 15:3	PR 112	PG 7	PR 101	PY 42	PW 6	PBK 7
Monoethyleneglycol	18.0	16.0	11.0	16.0	15.3	18.0	15.5	18.0
<b>DELTA S® 5225</b>	6.5	10.0	17.0	10.0	66	7.7	7.3	4.5
Demi-Water	33.8	32.8	38.7	32.8	12.0	17.2	14.1	57.7
NaOH (25% in water)	1.0	1.5	2.6	1.5	1.0	1.1	1.1	1.1
<b>DELTA FC® 1525</b>	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Anti-settling	--	--	--	--	0.3	0.3	0.3	--
Preservative	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pigment	40.0	39.0	30.0	39.0	64.0	55.0	61.0	18.0
Total weight	100.0	100.0	100.0	100.0	99.9	100.0	100.0	100.0
Pigment characteristics	BET=17	BET=57	BET=30	BET=44	OA=26	OA=34	OA=16	DBP=93

Please note that the above formulations were established using specific pigments with determined OA-, BET- and DBP- value (Please refer to Choosing a Dispersion Control Additive).

In case you use pigments with different properties, it is obvious that your formulations would need some adjustments.

Should you require tailored colorant formulations for your own system (s), our Technical Service technicians would be more than pleased to assist.

We can indeed provide you with all the support you need to develop your own tinting system.

# Multi-Functional Additives

**DELTA S® 5700** is an anti-gel agent and viscosity stabilizer for air-drying and stoving coating systems. It delays/prevents thickening, which can occur as a result of oxidation or condensation of the binder.

- It also reduces the reaction of the pigments with the vehicle.
- It is usually added prior to grinding, but already gelled materials can be restored to processing viscosity by the addition of **DELTA S® 5700**.

**DELTA S® 5750** is a diol ester compound that function as a coalescing agent for different types of latexes in water-based paints. **DELTA S® 5750** is characterized by its low water solubility and good hydrolytic stability over wide pH range which enhances its coalescing effect. Further additional benefits are enhancing the scrub resistance, reducing the MFFT, improving color development and has a good hydrolytic stability over wide pH range.

**DELTA S® 5715** is a multifunctional additive for printing inks. It acts as an adhesion promoter and substrate wetting additive for laminating inks. Further, **DELTA S® 5715** improves color strength and stability.

- It can be effectively used with different types of laminating liquid inks improving adhesion on different substrates.

**DELTA S® 5800** is a specially formulated humectant that can replace traditional glycols to help in formulating a low VOC water-based colorants and pigment pastes. It prevents the drying out of water-based pigment pastes, prevents pigment caking and maintains the pigment pastes quality upon storage.

**DELTA S® 5845** is a high molecular polymeric wetting and dispersing agent particularly developed for dispersing organic and carbon black pigments in plasticizers and polyols. It offers an excellent viscosity reduction and color strength. **DELTA S® 5845** is supplied as %50 active in phthalate-free plasticizer.

**DELTA S® 97** provides pH control and stability. It can substitute ammonia and thus reduces odor during production and in the final paint.

- It also reduces the dose of dispersant, wetting agent, anti-foam and coalescent agent and provides excellent wetting properties.



# Replacements for Cobalt Drier Mordry 410/420

MORDRY 410 and MORDRY 420 are highly efficient replacements for cobalt drier in urethane-modified alkyds and alkyds. They can be efficiently applied in clear and brightly pigmented urethane-modified alkyds and in conventional alkyds, which tend to discolor.

As compared to cobalt octoate, these cobalt replacements can offer superior properties such as:

- The minimization of discoloration of clear urethane-modified alkyds in can.

- The improvement of alkali resistance.
- The increase in yellowing resistance of air-drying alkyd finishes especially those subjected to prolonged heat or alkaline fumes.
- The prevention of 'loss of dry' on aging.
- The relative lower level of toxicity compared to cobalt.

To highlight the performance of one of these special driers, **MORDRY®410** was tested in 2 different urethane-modified alkyds (see table below) in comparison to cobalt octoate, considered to be the benchmark.

Internal reference: Formulation 6/ 2009	Formulation 1	Formulation 2	Formulation 3	Formulation 4
Uralac AR 202 W50 (DSM)	80.00 pbw	80.00 pbw	--	--
U-alkyd 20621 (60%) (Local)	--	--	80.00 pbw	80.00 pbw
White Spirit	18.96 pbw	18.96 pbw	18.46 pbw	18.46 pbw
<b>MORDRY® 410</b>	0.24 pbw	--	0.30 pbw	--
<b>MORDRY® Cobalt 10%</b>	--	0.24 pbw	--	0.30 pbw
<b>MORDRY® Calcium 10%</b>	0.48 pbw	0.48 pbw	0.48 pbw	0.48 pbw
<b>MORDRY® Zirconium 18%</b>	0.80 pbw	0.80 pbw	0.80 pbw	0.80 pbw
Color/Gardner	4 - 5	13 - 14	4 - 5	14
Drying time @25 C (min)	140 min	130 min	150 min	145 min



**Additives for Coatings, Printing Inks,  
Adhesives and Composites**

little makes difference

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