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Technical Data

Recommendations for the Replacement of NYTAL[®] Talc In Paints and Coatings

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Recommendations for the Replacement of NYTAL[®] Talc In Paints and Coatings

NYTAL[®] industrial talc products are a natural blend of hard/durable prismatic and acicular particles (tremolite/anthophyllite), soft platy particles (talc) and very fine clay-like particles (antigorite/lizardite). The properties of the **NYTAL** products can be reasonably approximated by combinations of readily available Vanderbilt minerals that mimic the morphology and functionality of the constituents of **NYTAL**: **VANSIL[®]** wollastonite is similar to the tremolite/anthophyllite component, **VANTALC[®]** platy talc is equivalent to the platy talc component, and **McNAMEE[®]** Clay is similar to the antigorite/lizardite component. We believe that a practical approach to replacing **NYTAL** in most coatings is to use a combination of **VANSIL** and **VANTALC** products. The wollastonite contributes durability, weatherability, film reinforcement and abrasion resistance. The platy talc contributes film reinforcement, barrier properties, flattening, and resistance to blistering and corrosion. The following photomicrographs compare the morphologies of the **NYTAL**, **VANSIL** and **VANTALC** products.



NYTAL Industrial Talc: acicular, prismatic/nodular, platy



**VANSIL Wollastonite: acicular,
prismatic/nodular**



VANTALC Platy Talc: platy

VANTALC F2504, VANTALC R and VANTALC 6H-II are suitable for combinations with **VANSIL W-50** wollastonite when a high Hegman, high brightness talc is preferred. The new **VANTALC** products – **VANTALC 2000, VANTALC 2500, VANTALC 3000, VANTALC 3100, VANTALC 3500, VANTALC 4000 and VANTALC 4500** – provide additional options for grind and color when combined with **VANSIL W-20, VANSIL W-30, VANSIL W-40 and VANSIL-W 50.**

Typical Properties	GE Brightness	<325 mesh,%	Median P.S.D., μm*	Hegman Fineness	Oil Absorption	pH
<i>Industrial Talc</i>						
NYTAL® 200	90	97.5	12.6	0-1	23	9.4
NYTAL 300	90	99.9	6.9	4	29	9.4
NYTAL 400	91	99.9	4.6	5	39	9.4
<i>Platy Talc</i>						
VANTALC® 2500	80	98.8 ^B	18.9	0	26	9.4
VANTALC 2000	87	93.3	9.8	0	36	9.4
VANTALC 3500	84	99.75	8.5	4	38	9.4
VANTALC 3100	87	99.9	7.8	3¼	36	9.4
VANTALC 3000	83	99.9	6.7	3½	42	9.4
VANTALC 4500	83	Trace	4.2	5	44	9.4
VANTALC 4000	85	99.9	3.6	5	52	9.4
<i>Wollastonite</i>						
VANSIL® W-20	87	98.0	12.0	0-1	20	10
VANSIL W-30	87	99.9	10.0	4	21	10
VANSIL W-40	87	99.97	5.6	5	26	10
VANSIL W-50	87	100.0	2.8	6+	28	10

* Particle Size Distribution by SediGraph

Vanderbilt recommends starting with about a 1:3 wollastonite to talc ratio and the following combinations:

To Replace:	Use: Wollastonite plus Platy Talc	
	Wollastonite	Platy talc
NYTAL 200	VANSIL W-20	VANTALC 2000 or VANTALC 2500
NYTAL 300	VANSIL W-30	VANTALC 3000, VANTALC 3100 or VANTALC 3500
NYTAL 400	VANSIL W-40 or VANSIL W-50	VANTALC 4000 or VANTALC 4500

While **NYTAL** products conveniently provide the composite properties of a multi-mineral blend, using **VANSIL** and **VANTALC** in combination may allow for better tailoring of the properties important to a specific coating by fine-tuning the ratio of hard acicular and prismatic particles to soft platy particles.

Because **NYTAL** products provide both high brightness and relatively low oil absorption, Vanderbilt has evaluated a number of **VANSIL/VANTALC** combinations for these properties, using the wollastonite to talc ratios 1:3, 1:1 and 3:1. The following table provides some guidance with regard to the specific requirements of paints and coatings.

Please note that the grade abbreviations **W-20, W-30**, etc. refer to **VANSIL** grades, and that the grade abbreviations **VT 2000, VT 3000**, etc. refer to **VANTALC** grades:

	Oil Absorption	Dry		In Oil	
		GE Brightness	L	GE Brightness	L
NYTAL 200	23	90	95	43	72
NYTAL 300	30	90	96	42	70
NYTAL 400	39	91	97	50	74
VANSIL W-20	28	87	94	40	70
VANSIL W-30	25	87	95	51	74
VANSIL W-40	31	87	95	44	71
VANSIL W-50	26	100	97	59	78
VANTALC 2000	36	87	94	28	56
VANTALC 2500	26	80	90	32	59
VANTALC 3000	42	83	93	36	63
VANTALC 3100	36	87	94	30	59
VANTALC 3500	38	84	92	34	60
VANTALC 4000	52	85	93	32	58
VANTALC 4500	44	83	92	34	61
1:3 W-20/VT 2000	31	85	93	35	63
1:1 W-20/VT 2000	31	84	93	38	65
3:1 W-20/VT 2000	30	84	93	39	67
1:3 W-20/VT 2500	24	83	92	37	63
1:1 W-20/VT 2500	25	85	93	41	66
3:1 W-20/VT 2500	27	87	94	47	70
1:3 W-30/VT 3000	35	88	94	45	69
1:1 W-30/VT 3000	33	89	95	47	71
3:1 W-30/VT 3000	30	89	95	48	72
1:3 W-30/VT 3100	34	84	93	38	65
1:1 W-30/VT 3100	31	86	94	42	68
3:1 W-30/VT 3100	28	87	94	47	71
1:3 W-30/VT 3500	35	85	93	39	64
1:1 W-30/VT 3500	36	86	93	43	68
3:1 W-30/VT 3500	33	88	94	47	70
1:3 W-40/VT 4000	48	85	92	39	65
1:1 W-40/VT 4000	44	87	94	41	67
3:1 W-40/VT 4000	41	87	94	43	69
1:3 W-40/VT 4500	39	85	92	37	63
1:1 W-40/VT 4500	42	86	93	40	66
3:1 W-40/VT 4500	40	87	94	43	68
1:3 W-50/VT 4000	45	88	94	43	67
1:1 W-50/VT 4000	40	87	94	45	68
3:1 W-50/VT 4000	35	90	95	52	73
1:3 W-50/VT 4500	39	86	93	52	73
1:1 W-50/VT 4500	39	87	94	43	68
3:1 W-50/VT 4500	35	90	95	43	67

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