Progress in development of method for VOC exclusion

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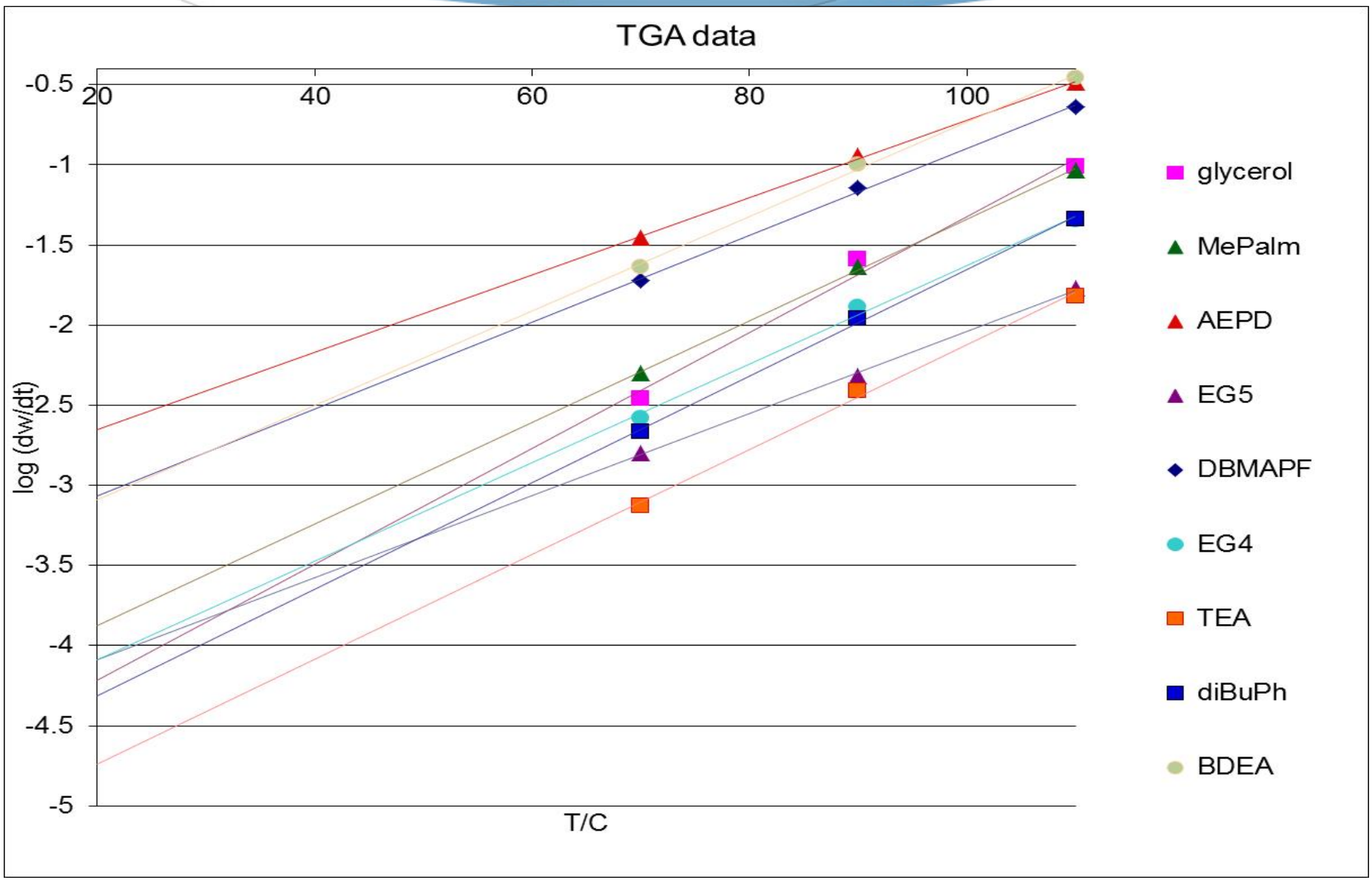
Work to date

- Demonstrated feasibility of extracting remaining semi-volatiles from dried paint films
- Used TGA to determine relative weight loss (proportional to vapor pressure) as function of temperature for several semi-volatiles
- Worked with industry to develop paint matrices to use in extraction studies

ACA priority semi-volatiles

Vantex-T	Pentaethylene glycol	Poly(neopentyl) glycols
2-ethylhexyl benzoate (Velate 368)	2-amino-1-butanol	Lubrizol GRB3
Polyethylene glycol	2-amino ethanol	Nuosperse AQ100 Nuosperse AQ200 Nuosperse AQ300
Optifilm 400	Soy oil	PEG300 (covered under Polyethylene glycol?)
EPS 9147	HEEU (hydroxyethyl ethylene urea)	Canola oil
Triethylene glycol	2-Hydroxyethyl urea	Tung oil
Tetraethylene glycol	Acrylates	Biocides

TGA Results for Semi-volatiles



Proposed paint matrices for extraction studies

- Ideal if one paint matrix could be used for all studies for given class of paints
- For architectural coatings, either a semi-gloss or flat interior paint could be ideal
- Semi-gloss provides greater amount of material remaining in film
- Flat provides greatest loss of semi-volatiles from film

Interior flat test formulation

[redacted]

ITEM	QTY REQD	UOM	QTY REQD	UOM	DESCRIPTION
) DISPERSER					
[redacted]	800.00	LB	96.04	GL	WATER
	[redacted]				
	6.00	LB	0.76	GL	AMP-95
	8.00	LB	0.91	GL	ROCIMA BT NV2
	30.00	LB	3.26	GL	TAMOL 731A
	8.00	LB	0.90	GL	TRITON CF-10
	8.00	LB	1.08	GL	DREWPLUS T-4507 (BULK)
	800.00	LB	16.00	EA	TIPURE R-706 / TIONA 596 (50LB BAG)
	400.00	LB	8.00	EA	MATTEX MX (50LB BAG)
	520.00	LB	10.40	EA	MINEX 4 (50LB BAG)
	20.00	LB	0.40	EA	ATTAGEL 50/MUG 500 (50LB BAG)
	1,120.00	LB	125.70	GL	VINNAPAS EF-8001
	32.00	LB	3.71	GL	OPTIFLO L1400
	146.00	LB	16.88	GL	OPTIFLO M2600VF (TOTE)
	12.00	LB	1.62	GL	DREWPLUS T-4507 (BULK)
	668.00	LB	80.19	GL	WATER

Properties of proposed flat interior latex

Formula Technical Parameters	
TOT_WT	4578
TOT_VOL	398.306
DENSITY	11.494
VOC_REG	5.109
VOC_ACT	1.805
NV_WT	52.997
NV_VOL	35.143
PVC	47.832
PB	2.523

Interior semi-gloss test formulation

ST :
QTY : 400.00 UOM: GL

ITEM	QTY REQD	UOM	QTY REQD	UOM	DESCRIPTION
D DISPERSER					
	488.00	LB	58.58	GL	WATER
	6.00	LB	0.12	EA	NATROSOL PLUS 330PA (50LB BAG)
	10.00	LB	1.27	GL	AMP-95
	8.00	LB	0.91	GL	ROCIMA BT NV2
	24.00	LB	2.42	GL	TAMOL 1124
	8.00	LB	0.90	GL	TRITON CF-10
	8.00	LB	1.08	GL	DREWPLUS T-4507 (BULK)
	900.00	LB	18.00	EA	TIPURE R-706 / TIONA 596 (50LB BAG)
	60.00	LB	1.20	EA	OMYA 4 / HUBER G-35 (50LB BAG)
	40.00	LB	0.80	EA	ATTAGEL 50/MUG 500 (50LB BAG)
ES HIGH SPEED TO 6 NS, THEN ADD THE FOLLOWING					
	1,917.20	LB	213.73	GL	VINNAPAS EF-8300
	120.00	LB	13.92	GL	OPTIFLO L1400
	40.00	LB	4.64	GL	OPTIFLO H3300VF
	12.00	LB	1.62	GL	DREWPLUS T-4507 (BULK)
	564.00	LB	67.71	GL	WATER

Properties of proposed semi-gloss interior latex

Formula Technical Parameters	
TOT_WT	4205.2
TOT_VOL	399.036
DENSITY	10.538
VOC_REG	7.946
VOC_ACT	3.003
NV_WT	50.608
NV_VOL	37.473
PVC	20.771
PB	0.878

Future Work

- Decide on test formulation to be used in extraction studies
- Perform extraction test on target compound(s)
- Discuss results with SCAQMD/EPA to refine test procedure