

## CHP 500

<b>Description</b>	<b>CHP 500</b> is an anionic fine dispersed aqueous dispersion of styrene acrylic copolymer for paints, clear lacquers and plasters. CHP 500 is APEO- free.	
<b>Application</b>	<b>CHP 500</b> is a versatile binder with excellent pigment binding capacity and outstanding water and alkali resistance for both high and low PVC paints, clear lacquers, plasters, building and industrial adhesives.	
<b>Specification</b>	Solids content, %	50 ± 1
	pH	7,5 – 8,5
	Brookfield viscosity, mPas (LVTDV – II, 60 rpm, spindle 3)	200 - 900
<b>Characteristics of the dispersion</b>	Appearance	milky white
	Stabilization	anionic
	Average particle size (nm)	100
	Glass transition temperature (°C)	17
	Minimum film formation temperature (°C)	18 – 20
	König Film Hardness, RH 50%, +23 °C, 14 d, (s)	45
	Density (g/cm <sup>3</sup> )	1,04
<b>Packaging, storage &amp; safety</b>	CHP 500 should be kept in the original containers or in stainless steel, aluminium or plastic tanks. Ordinary steel tanks with a corrosion proof lining can also be used. The containers should be kept closed to prevent evaporation of the water and the formation of a skin on the surface. The product should not be exposed to frost, to temperatures exceeding 40°C or to direct sunshine. Under normal conditions, the product can be stored for twelve months with no significant loss of its properties, but it cannot be guaranteed for a longer time.  For safety issues, please refer to the material safety data sheet.	
<b>Technical Service</b>	Trained and experienced field sales and technical service representatives of CH-Polymers are ready to provide advice and assistance with laboratory tests and plant trials.	
<b>Contact</b>	<b>CH-Polymers Oy</b> Tel. +358 9 5024 4150 Fax +358 2 467 60 70 Info@ch-polymers.com <a href="http://www.ch-polymers.com">www.ch-polymers.com</a>	

### **Properties**

CHP 500 contains an optimized emulsifying system which in combination with a small particle size gives an excellent pigment binding capacity.

CHP 500 is produced by a two stage process resulting in an outstanding water and alkali resistance.

The excellent pigment binding capacity in combination with the outstanding water resistance means that CHP 500 can be used in high pigmented interior paints with good scrub resistance as well as in semi-matt interior paints and exterior paints on mineral surfaces (masonry paints).

CHP 500 is also suitable as a binder in clear lacquers, fillers, plasters and different types of building and construction materials.

### **Formulation**

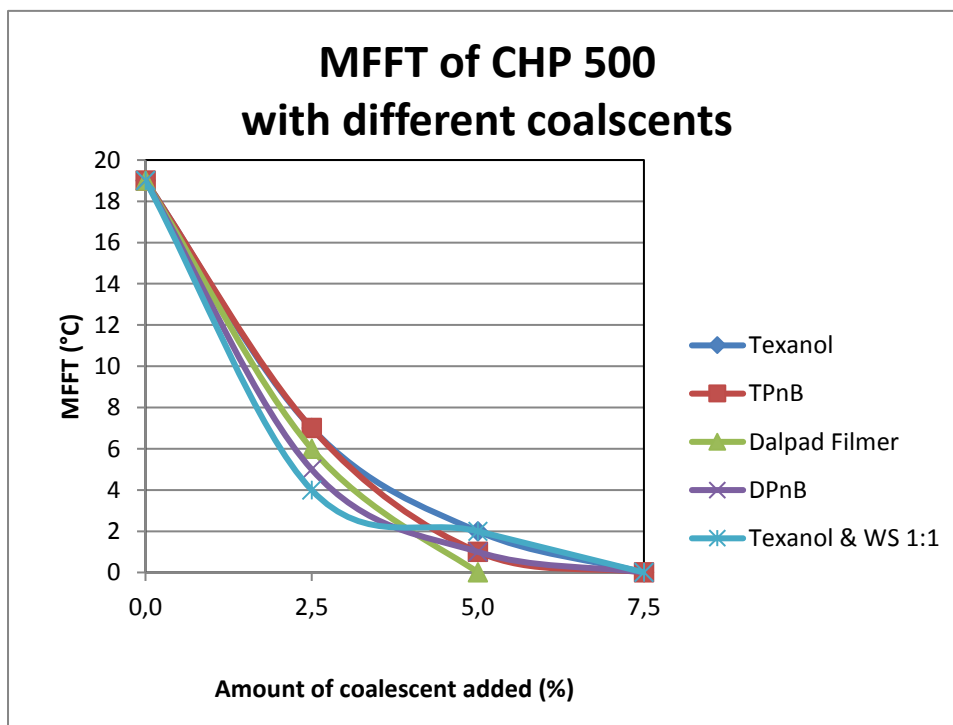
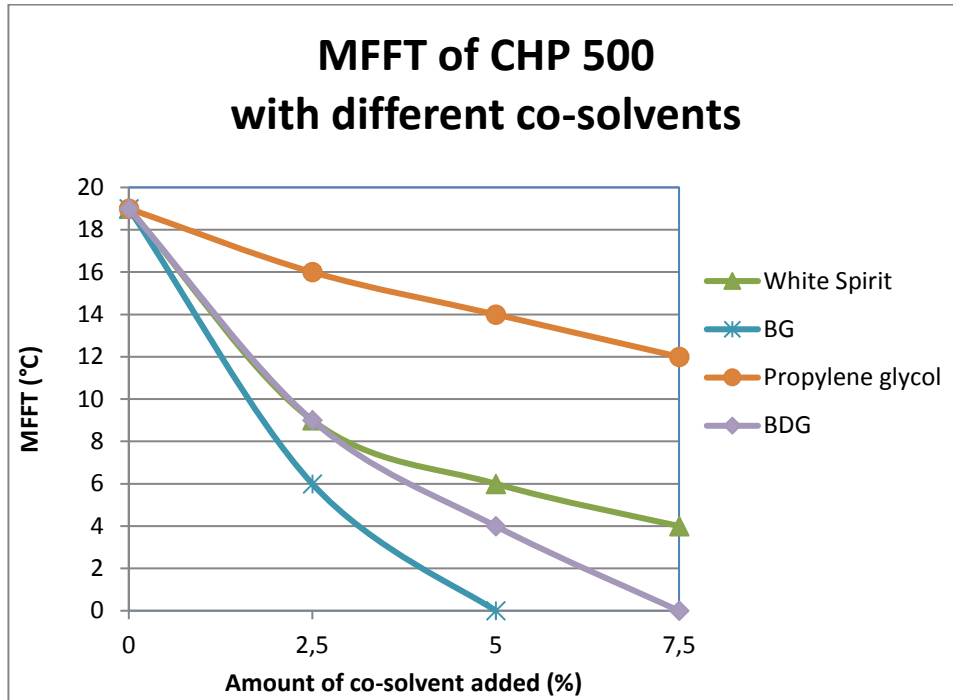
CHP 500 is easily formulated with normal dispersing agents but to achieve maximum scrub resistance in high pigmented formulations a combination of sodium hexa meta phosphate and water soluble poly acrylates is recommended.

CHP 500 can be thickened with traditional thickeners like non-ionic cellulose ethers and poly-acrylates. Polyurethane thickeners are recommended to improve the leveling and application properties of the paint.

The pH of the formulation can easily be adjusted by addition of for example ammonia.

To ensure good film formation of the formulation enough co-solvent or coalescing agent should be added. The minimum film formation temperature of CHP 500 as function of the amount and type of added co-solvent or coalescing agent is given in the graphs below.

To reduce the raw material costs in the formulations 10 – 50 % of the titanium dioxide amount can preferably be replaced by the opacifying pigment FP-460 from FP-Pigments Oy. The replacement can be made 1:1 by weight. The FP-460 pigment should be added first to the grind and pH has to be above 9. Then grind for 3 to 5 minutes. Thereafter the titanium dioxide should be added and finally the different extenders, please see the starting point formulation for "Egg-Shell Indoor Paint, PVC 43%".



## Interior Wall Paint Gloss 20

Complying with EU VOC limit value (Cat A/a): 30 g/l

December 2010

Raw Materials:	P 101-22	Function	Raw Material Supplier
<i>Pigment grind:</i>			
Water	180,0		
Natrosol 330 Plus	2,4	Thickener	
AMP-95	0,9	pH adjustment	
CHP 805	2,7	Dispersing agent	CH-Polymers Oy
Berol 185	2,1	Stabilizing surfactant	Akzo Nobel Surface Chemisty
Foamaster 50	2,1	Antofoaming agent	Cognis
Acticide MV 14	0,1	In can preservative	Thor
Sachtleben 660	199,5	Titan dioxide pigment	Sachtleben Pigments Oy
Omyacarb 2 GU	99,6	Filler	Omya
Foamaster 50	1,2	Antifoaming agent	Cognis
Texanol	19,5	Film forming agent	
<i>Let down:</i>			
Water	20,1		
Acrysol RM-5000	5,1	Associative thickener	The Dow Chemical Company
<b>CHP 500</b>	<b>488,7</b>	Binder	CH-Polymers OY
Acrysol DR-72 5% (aq)	24,7	Associative thickener	The Dow Chemical Company
Water	44,4		
<b>Total</b>	<b>1093,1</b>		
<b>Paint Properties:</b>			
Solid Content	weight-%	50,8	
	volume-%	34,0	
PVC	%	27,9	
VOC	g/l	0,6	
Density	kg/l	1,29	
Viscosity:			
-Krebs Stormer	KU	93	
-Brookf/1rpm	P	189	
-Brookf/20rpm	P	35	
ICI	cP	90	
pH		8,7	
MFFT	°C	5	
<b>Film Properties:</b>			
Gloss 20°/ 60°/ 85°	GU	3/18/50	
Opacity	%	83,6	
König Hardness, 1 day	s	18	
14 days	s	50	
Blocking test	ISO 4622		
- 1day, 640g @+23C, 30"		7	
- 1day, 640g @+50C, 30"		3	
<b>Scrub Resistance:</b>	7 days drying		
-ISO 11998	µm	3	
-EN 13300	Class	1	
<b>Storage Stability</b>		<b>OK</b>	

## Eggshell Indoor Paint, PVC 43%

Complying with EU VOC limit value ( Cat A/a): 30 g/l

November 2012

Raw Materials:	P 122-19	P122-22	Function	Raw Material Supplier
<i>Pigment grind:</i>				
Water	42,5	42,5		
CHP 805	3,0	3,0	Dispersing agent	CH-Polymers OY
Hydropalat 1080	0,8	0,8	Dispersing agent	Cognis
Foamaster 50	1,0	1,0	Antifoaming agent	Thor Specialities
Ammonia 25% (aq)	1,1	1,1	pH adjustment	BYK Additives and Instruments
<b>FP-460</b>		20,0	Opacity pigment	FP-Pigments
Sachtleben RDI-S	100,0		Titan dioxide pigment	Sachtleben Pigments Oy
Omyacarb 2 GU	100,0	100,0	Filler, Ca-carbonate	Omya
Sachtleben RDI-S		80,0	Titan dioxide pigment	Sachtleben Pigments Oy
Propylene Glycol	10,0	10,0	Open time adjustment	
Texanol	13,0	13,0	Film forming agent	
<i>Let down:</i>				
<b>CHP 500</b>	260,0	260,0	Binder	CH-Polymers OY
Ammonia 25% (aq)	1,0	1,0	pH adjustment	
Foamaster 50	1,5	1,5	Antifoaming agent	Cognis
Acrysol RM-2020	4,0	4,0	Associative Thickener	The Dow Chemical Company
Acrysol TT-935: Water 1:2	7,7	7,7	Associative Thickener	The Dow Chemical Company
Water	36,8	36,8		
<b>Total</b>	<b>582,4</b>	<b>582,4</b>		
<b>Paint Properties:</b>				
Solid Content	weight-%	57,7	57,7	
	volume-%	44,7	45,2	
PVC	%	34,7	35,4	
VOC	g/l	24	24	
Density	kg/l	1,4	1,4	
Viscosity:				
- Krebs Stormer	KU	136	140	
- Brookf.RVT3/1rpr	P	446	506	
- ICI Cone & Plate	cP	130	150	
pH		9	9,1	
MFFT	°C	0	0	
<b>Film Properties:</b>				
Gloss 20°/ 60°/ 85°	GU	2 / 8 / 25	2 / 7 / 23	
Opacity	%	96,8	95,9	
Scrub Resistance				
- ISO 11998	µm	3	4	
- EN 13300	Class	1	1	
<b>Storage Stability</b>		<b>OK</b>	<b>OK</b>	

## Matt Wall Paint

Complying with EU VOC limit value ( Cat A/a): 30 g/l  
December 2010

<b>Raw Materials:</b>		<b>Function</b>	<b>Raw Material Supplier</b>
<i>Pigment grind:</i>			
Water		<b>20,0</b>	
Celflow S-200 1% (aq)		<b>280,0</b>	Thickener Noviant
NaOH 10% (aq)		<b>2,0</b>	pH adjustment The Dow Chemical Company
Byk 154		<b>7,0</b>	Dispersing agent BYK Additives and Instruments
Acticide MV 14		<b>0,1</b>	In-can preservative Thor Specialities
Foamster 50		<b>2,0</b>	Antifoaming agent Cognis
Sachtleben RDDI		<b>60,0</b>	Titan Dioxide Pigment Sachtleben Pigments Oy
Socal P2		<b>100,0</b>	Filler, PCC Solvay Chemicals
Chalk Nordweiss		<b>195,0</b>	Filler, amorphous Ca-ca Omya
Omyacarb 2 GU		<b>180,0</b>	Filler, Ca-carbonate Omya
Finntalc M 15		<b>50,0</b>	Filler, talcum Omya
Texanol		<b>5,0</b>	Film forming agent
Mineral spirit		<b>3,0</b>	Film forming agent
<i>Let down:</i>			
<b>CHP 500</b>		<b>120,0</b>	Binder CH-Polymers OY
Celflow S-200 1% (aq)		<b>56,0</b>	Thickener Noviant
<b>Total</b>		<b>1080,1</b>	
<b>Paint Properties:</b>			
Solid Content	weight-%	<b>60,3</b>	
	volume-%	<b>39,3</b>	
PVC	%	<b>79,6</b>	
VOC	g/l	<b>5</b>	
Density	kg/l	<b>1,54</b>	
Viscosity:			
-Krebs Stormer	KU	<b>110</b>	
-Brookf. RVT3/1rpm	P	<b>1300</b>	
.- ICI Cone & Plate	mPas	<b>135</b>	
pH		<b>8,1</b>	
MFFT	°C	<b>0</b>	
<b>Film Properties:</b>			
Gloss 20°/ 60°/ 85°	GU	<b>1 / 3 / 5</b>	
Hiding	%	<b>96,7</b>	
Whiteness	%	<b>87,1</b>	
Scrub Resistance			
- ISO 11998	µm	<b>26</b>	
- EN 13300	Class	<b>3</b>	
<b>Storage Stability</b>		<b>OK</b>	

## Panel Lacquer

Complying with EU VOC limit value ( Cat A/e): 120 g/l  
April 2011

<b>Raw Materials:</b>		<b>Function</b>	<b>Raw Material Supplier</b>
Water	<b>362,7</b>		
Acticide MV 14	<b>0,1</b>	In-can preservative	Thor Specialities
<b>CHP 500</b>	<b>600,0</b>	Binder	CH-Polymers OY
Texanol	<b>16,0</b>	Film forming agent	
Acrysol RM 2020	<b>8,8</b>	Thickener	The DOW Chemical Company
Acrysol RM 8W	<b>2,9</b>	Thickener	The DOW Chemical Company
Water	<b>27,3</b>		
Ammonia 25% (aq)	<b>0,7</b>	pH-adjustment	
Byk 028	<b>0,5</b>	Defoamer	BYK Additives and Instruments
<b>Total</b>	<b>1019,0</b>		

### Lacquer Properties:

Solid Content	weight-%	<b>29,9</b>
VOC	g/l	<b>1</b>
Viscosity:		
-Brookf.RVT2/10rpm	mPas	<b>740</b>
- ICI Cone & Plate	mPas	<b>135</b>
pH		<b>8,1</b>
MFFT	°C	<b>&lt; 5</b>

### Film Properties:

König Hardness:	1 day	s	<b>23</b>
	14 days	s	<b>37</b>
	28 days	s	<b>42</b>

<b>Storage Stability</b>	<b>OK</b>
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## Ceramic Tile Adhesive

December 2010

<b>Raw Materials:</b>	<b>Function</b>	<b>Raw Material Supplier</b>
<i>Pigment grind:</i>		
Water	<b>63,4</b>	
Orotan 731 A-ER	<b>2,3</b> Dispersing agent	The Dow Chemical Company
Calgon PT 10% (aq)	<b>10,0</b> Dispersing agent	
Acticide MV 14	<b>0,1</b> In-can preservative	Thor Specialities
Foamaster 8034 M	<b>2,0</b> Antifoaming agent	Cognis
Plastilit 3060	<b>10,0</b> Plasticizer	BASF
Texanol	<b>6,0</b> Film forming agent	
CHP 500	<b>250,0</b> Binder	CH-Polymers Oy
Myanit 10 - 70	<b>400,0</b> filler, Ca-Mg-carbonate	Omya
Siokal FF 30	<b>300,0</b> Filler feldspar	Sibelco Nordic
Propylene Glycol	<b>25,0</b> Open time adjustment	
Cellosize QP 30000	<b>3,0</b> Thickener, cellulose eth	The Dow Chemical Company
Silquest A 187	<b>0,5</b> Adhesion promoter	Momentive Performance Chemi
<b>Total</b>	<b>1072,3</b>	
Solid Content	weight-%	<b>78,3</b>

### Adesion Properties

Drying speed: 4 days +23 °C, 50% RH

 Tensile Strength N/mm<sup>2</sup> **1,03** K

 S.D. ± N/mm<sup>2</sup> **0,06**

Initial adhesion: 14 days +23 °C, 59% RH

 Tensile Strength N/mm<sup>2</sup> **1,54**

 S.D. ± N/mm<sup>2</sup> **0,04** K/R

Adhesion after water immersion: 7 days +23 °C, 50% RH, 7 days +70 °C in Water

 Tensile Strenth N/mm<sup>2</sup> **0,61**

 S.D. ± N/mm<sup>2</sup> **0,01** K

Adhesion after heat aging: 14 days +23 °C, 50% RH, 14 days +70 °C, 1 day +23 °C

 Tensile Strength N/mm<sup>2</sup> **>3,32**

 S.D. ± N/mm<sup>2</sup> **>0,43** R

*K = cohesion failure, A = adhesion failure, R = tile break*

This information is based on our laboratory tests, experience and best knowledge for the moment. We recommend that the prospective user determine the usage of our raw materials and recommendations before adopting them on a commercial scale.