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Your Best Safeguards for Life

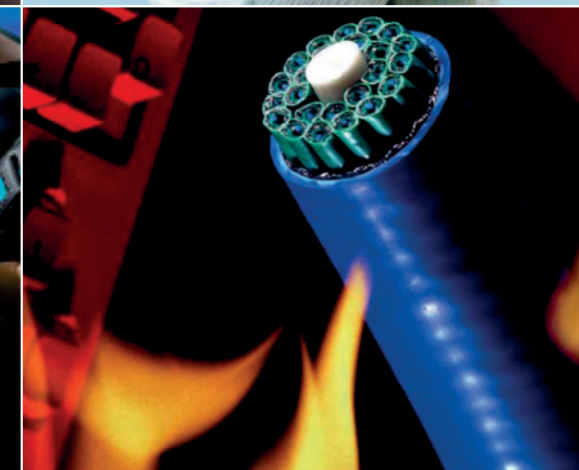
wellchem
Deliver Safety and Value*

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Your Best Safeguards for Life

Halogen Free Flame Retardants

offer high quality products and create solutions



Your Best Safeguards for Life

Introduction



Wellchem is a high-tech enterprise specialized in both Innovation and production of flame retardants as well as providing the flame proofing related service and solutions to customers worldwide.

Started in 2000. Through our vigorous research and innovative development work, we now stand as **the third leading (Clariant, Budenheim) producer of ammonium polyphosphate (Phas II, n>1000)** in the world, and hold a firm position in the global market for this product in various applications such as:

- Intumescent fireproofing paints and coatings.
- Plastics and polymer.
- Sealants and adhesives.
- Fabric and textile.

In addition, we also produce Melamine-based and Phosphite / Phosphonate based flame retardants, applications in engineering plastic with many advantages in cost effectiveness, environmental friendliness.

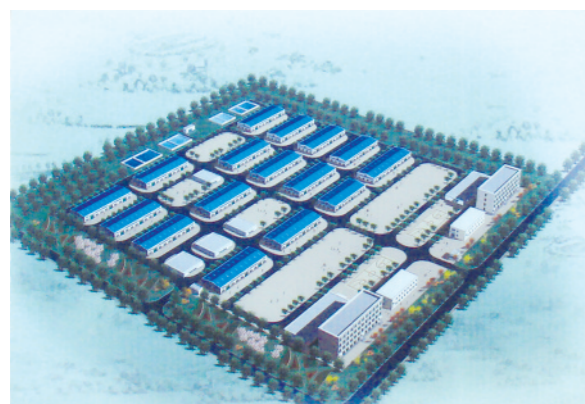
Our policy is to work with our customers to ensure optimum cost-effective and competitive solution (custom-made) based on their specific needs and related problem.

By Innovation, Technology and Quality Management System, The product quality and consistency are international recognized and well received by our customer worldwide.

Wellchem works closely with regulatory bodies and industry associations to ensure we are fully up to date on new developments and legislation concerning REACH.

Our Mission is to :

- become a highly trusted flame retardant producer
- creates values+ and solution for our customer
- serves as a preferred partner of our customers.



Production Site in Shangdong



Production Site in Quzhou

Textile Flame Retardant

Wellchem CU

Cyclic Phosphate Ester
CAS: 42595-45-9 ; 41203-81-0

Physical and Chemical properties

Appearance	Colourless to light yellow
Active Component	100%
Density (g/cc@ 25°C)	1.20-1.30
Phosphorus	20.0 % min
PH(10% solution)	2.0-3.0
Acid Number(mg KOH/g)	30 max
Viscosity @ 25°C (Cps):	20,000-50,000

- Wellchem CU is an efficient cyclic phosphonate flame retardant for treatment of Textiles

- **Application**
Treatment of Polyester and T/C blends
Coating treatment of Polyester and PU fabric

- **Package:** 50kg, 70kg, 125kg drum or 1250kg IBC

Marks: High Viscosity, Heat up to 40°C to pouring out.

Wellchem CT

Cyclic Phosphate Ester
CAS: 42595-45-9 ; 41203-81-0

Physical and Chemical properties

Appearance	Colourless to Light yellow
Active Component	93%
Density (g/cc@ 25°C)	1.20-1.30
Phosphorus	20 % min
PH(10% solution)	2.0-3.0
Acid Number(mg KOH/g)	20 max
Viscosity @ 25°C (Cps):	2,000-10,000

- Wellchem CT is an efficient cyclic phosphonate flame retardant for treatment of Textiles

- **Application:**
Polyester fabric and Nylon fabrics (durable or non-durable)
Automotive use like car seat fabric, ceilings, coatings with acrylic binder
Adhesive (also pressure sensitive) & Sealants

- **Package:** 125kg drum or 1250kg IBC

Wellchem CP

3-Methyl amino-3-oxygen propyl dimethyl phosphate
CAS: 20120-33-6

Physical and Chemical properties

Appearance	White to light yellow viscous liquid
Active Component	80%
PH(10% solution)	5.5-6.5

- Wellchem CP is a durable, reactive finishing agent.

- **Application:**
Finishing cotton textile
Finishing linen, viscose fabric

- **Package:** 60kg 150 kg 250kg drum

Exflam APP 202 (Melamine Resin Coated)

Physical and Chemical properties

Phosphorus % (w/w)	≥28
Nitrogen % (w/w)	≥15.5
PH value (10% suspension)	5.5-7.5
Water content % (w/w)	≤0.25
Thermal decomposition °C	≥300
Viscosity (250C in 10% suspension) mPa.s	≤20
Solubility in water (g/100cm ³) % (w/w)	≤0.05
Average particle size μm	≤15

- **Application:**
Outdoor Paints and Coatings
Flexible PU
- **Advantage:**
Low solubility 0.05%
Good weatherability
- **Package:** 20kg craft paper bag

Exflam APP 203 (Melamine Coated)

Physical and Chemical properties

Phosphorus % (w/w)	≥28
Nitrogen % (w/w)	≥18
PH value (10% suspension)	5.5-8.5
Water content % (w/w)	≤0.25
Thermal decomposition °C	≥300
Viscosity (250C in 10% suspension) mPa.s	≤20
Solubility in water (g/100cm ³) % (w/w)	≤0.3
Particle size μm	≤15

- **Application:**
Thermoplastics (PP/PE)
Flexible PU
- **Advantage:**
Low solubility: 0.03%
Good flowability for process
- **Package:** 25 kg bag

Exflam APP 204 (Silicon Coated)

Physical and Chemical properties

Phosphorus % (w/w)	≥28
Nitrogen % (w/w)	≥14
PH value (10% suspension)	6.0-8.5
Water content % (w/w)	≤0.25
Thermal decomposition °C	≥300
Viscosity (250C in 10% suspension) mPa.s	≤20
Solubility in water (g/100cm ³) % (w/w)	≤0.1
Particle size μm	≤15

- **Application:**
Car inner textile coating
Electronic coating
- **Advantage:**
Low solubility 0.03%
Good weatherability
Anti-Conductivity
- **Package:** 25 kg bag

Exflam APP 205 (Epoxy Coated)

Physical and Chemical properties

Phosphorus % (w/w)	≥28
Nitrogen % (w/w)	≥18
PH value (10% suspension)	5.5-7.0
Water content % (w/w)	≤0.25
Thermal decomposition °C	≥300
Viscosity (250C in 10% suspension) mPa.s	≤20
Solubility in water (g/100cm ³) % (w/w)	≤0.3
Particle size μm	≤15

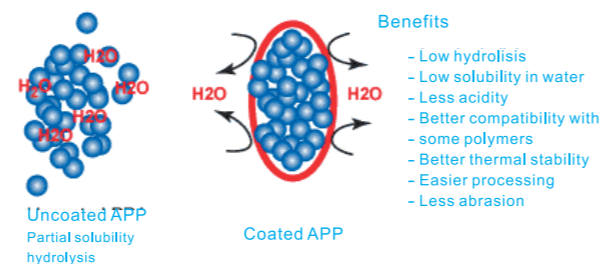
- **Application:**
Intumescent coating,
Textile
- **Advantage:**
Low solubility: 0.3%
Good Flowability for process
- **Package:** 25kg bag

In order to obtain optimum material performances, Exflam APP needs to:

- Be dispersed properly into the polymer
- Be compatible with the polymer matrix
- Be insoluble in water for better weathering performances

Moreover, to facilitate the processing of formulations, APP needs to have:

- Good flowability
- Good thermal stability to provide a larger processing window.



We provide Intumescent formulation products as follows:

Ammonium Polyphosphate
Exflam APP series

Acid Donor

Penta (Micronized)
Exflam Penta M40
Exflam Penta D40

Carbon Donor

Melamine (Micronized)
Exflam Melamine F40

Blowing Agent

Exflam Melamine F40

Micro-Melamine
CAS: 108-78-1

Physical and Chemical properties

Appearance	White powder
Purity %	99.8min
Moisture %	0.1max
PH	7.5-9.5
Formaldehyde dissolve test	All dissolved in 10minutes
Ash	0.03max
Colority(platinum-cobalt color)	20max
Particles size μm	40max
Turbidity(Kaolin Turbidity)	20max

Exflam Penta D40

Micro-Dipentaerythritol
CAS: 126-58-9

Physical and Chemical properties

Appearance	White powder
Di-PE wt%	85
Mono-PE wt%	3max
Tri-PE wt%	8max
Ash, wt%	0.05max
Moisture, %	1.0
Hydroxyl Group%	38-40
Particle size μm	40max
Phthalic color	2max
Melting Point °C	215min

Exflam Penta M40

Micro-Pentaerythritol
CAS: 115-77-5

Physical and Chemical properties

Appearance	White powder	
Monopentaerythritol content %	95min	98min
Hydroxyl group content %	47.5min	48.5min
Water content %	0.5max	0.2max
Ash content %	0.1max	0.05max
Phthalic color	2max	2max
Particle size μm	40max	40max
Melting Point °C	240min	240min

Melamine Derivatives FR

Cymela™ MPP

Melamine Polyphosphate
CAS: 218768-84-4

Physical and Chemical properties

Nitrogen Content	42-44 %
Phosphorus Content	12-14 %
Water content	max. 0.2%
Water solubility 20°C	max. 0.01g/100ml
PH value (saturated sol., 20°C)	approx. 5
Specific gravity	1.85 g/cm3
Bulk density	approx. 500 kg/m3

- Cymela MPP is modified by ammonium Polyphosphate. It is halogen-free flame retardant.

- **Application:**
Expoxy resin
Unstaturated polymer resin

- **Package:** 25 kg bag

Cymela™ MCA

Melamine Cyanurate
CAS: 37640-57-6

Physical and Chemical properties

	MCA 8	MCA 25	MCA 50
Appearance	White Powder	White Powder	White Powder
Melamine Cyanurat % (w/w)	≥99.5%	≥99.5%	≥99.5%
Excess Cyanuric acid % (w/w)	≤0.2%	≤0.2%	≤0.2%
Excess Melamine % (w/w)	≤0.3%	≤0.3%	≤0.3%
Water content % (w/w)	≤0.2%	≤0.2%	≤0.2%
PH	5-6	5-6	5-6
Particle size D98 um	≤8	≤25	≤50
D50 um	≤2	≤4	≤10

- Cymela MCA is melamine based halogen free flame retardant with diferent particle size distribution

- **Application:**
PA6/66
PA66 modified GF
PA6/66 modified filler
TET/PBT,TPU,Expoxy resin

- **Package:** 20 kg bag



Intumescent Flame Retardants

Ammonium Polyphosphate (Phase II, N>1000)

CAS: 68333 - 79 - 9
Formula:-(NH4PO3)-n n>1000

Exflam APP 201

Physical and Chemical properties

Phosphorus % (w/w)	≥31
Nitrogen % (w/w)	≥14
PH value (10% suspension)	5.5-7.0
Water content % (w/w)	≤0.25
Thermal decomposition 0C	≥275
Density at 250C kg/L	1.9
Apparent density kg/L	0.7
Viscosity (250C in 10% suspension) mPa.s	≤100
Solubility in water (g/100cm3) % (w/w)	≤0.5
Average particle size um	≤15

- Exflam APP 201 is ammonium Polyphosphate Phase II N>1000 Non-Coated. It is our standard grade

- **Application:**
Intumescent Paints and Coatings
Sealants
Thermoplastics PP/PE
Thermoset (PU, Expoxy, UP)
For Exflam APP 202 203 204 encapsulated

- **Package:** 25kg craft paper bag or 875kg big bag

Formulation Guidance

Water-Based Coatings

Water	15,00
Calgon n	0,10 dispersant agent
Triton x 165	0,10 wetting agent
Bublex 834	0,30 antifoam
Exflam 201	20,00 ammonium polyphosphate
Mirecide kw 600	0,15 fungicide
Tio2	11,00 titanium dioxide
Pentaerythritol	10,00
Melamine	10,00
Bermocoll431 fq	0,15 thickener
Glass fiber	3,00
Amp 90	0,30
Binder	26,00 vinyl versatic resin
Texanol	0,50 coalescent
Bublex 834	0,30 antifoam
Water	3,10
	100,00

Solvent Based Coatings

Xilol	10,0 solvent
Shelsola	10,0 solvent
Styrene-acrylic resin	10,6 neocryla b 881 or b 880
Clhorinated paraffin	4,5 cereclor 70
Dispersant	0,2 soyalecitin
Thickener	0,5 tixatrol st
Titanium dioxide	10,0
Milide glass fibers	3,0 vitrostrand 1304
Antimonium trioxoide	3,0
Pentaerythritol	10,0
Melamine	10,0
Exflam 201	22,0 ammonium polyphosphate
Snelsola	6,3 solvent
	100,0

Polymer

Ammonium Polyphosphate (Acid Donor)
Penta (Carbon Donor)
Melamine (Blowing Donor)

Formulation FR on customer's request:

Anti dripping agents (Boron Phosphate, Teflon,)
Whiteness enhancer (Antioxidants) and stabilizer
Elasticity enhancer (PTFE)