CMC
CHENGMING-CHEMICAL

HANDBOOK OF PAPER MAKING CHEMICALS

CHENG MING CHEMICAL (THAILAND) CO., LTD.
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PAPER MAKING CHEMICALS LIST

Sr. No	Code No.	Product Name	Type	CAS No.	Solid content (%)	Ionicity charge	pH	Shelf life (Month)
1	CM-P1110	AKD Pulp Sizing Agent	Liquid	144245-85-2	15	C	2.0-4.0	3
	CM-P1120				18	C	2.0-4.0	3
2	CM-P1360	Surface Sizing Agent	Liquid	24981-13-3	30	C	2.0-4.0	6
	CM-P1380				30	C	2.0-4.0	6
	CM-P1811				25	A	2.0-5.0	6
	CM-P1812				25	A	5.5-7.5	6
3	CM-P3601	Dry Strength Agent	Liquid	9003-05-8	15	Am	2.0-6.0	6
	CM-P3621				20	Am	2.0-6.0	6
	CM-P3628				20	Am	2.0-6.0	6
4	CM-P7701	Latex for Paper Coating	Liquid	25085-39-6	50	N/A	5.0-8.0	6
	CM-P7717				50	N/A	5.0-8.0	6
5	CM-P3721	Wet Strength Agent	Liquid	106-89-8	12	C	3.0-6.0	3
	CM-P3725				24.5	C	3.5-4.5	3
6	CM-P3110	Retention and Drainge Agent	Liquid	49553-92-6	N/A	C	2.0-4.0	6
	CM-P3500			9003-05-8	88	C	N/A	12
7	CM-P4126	Flocculant	Liquid	9003-05-8	88	A	N/A	12
	CM-P4215				88	C	4.0-8.5	12
8	CM-P5120	Defoamer Agent	Liquid	N/A	N/A	N/A	6.0-8.0	6
	CM-P5129			126-73-8	N/A	N/A	6.0-8.0	6
	CM-P5130			9082-00-2	N/A	N/A	5.0-7.0	6
9	CM-P9115	Deinking Agent	Powder	8002-75-3	N/A	A	N/A	12
	CM-P9131		Liquid	67762-27-0	50	N	5.0-6.8	24
10	CM-P4700	Deodorant	Liquid	201432-01-1	N/A	N/A	2.0-3.0	6
	CM-P4701			N/A	N/A	N/A	2.0-3.0	12
	CM-P4702			N/A	N/A	N/A	N/A	6
	CM-4703			N/A	N/A	N/A	7.0-9.0	6
11	CM-P4780	Filler Strength Agent	Liquid	49553-92-6	8	C	4.0-6.0	12
	CM-P4781			9003-05-8	14	Am	3.5-5.5	12
12	CM-P4708	Sludge Recycling Aid	Liquid	49553-92-6	8	C	4.0-5.0	12
	CM-P4718			9003-05-8	14	Am	4.0-5.0	12
13	CM-P5510	Adhesive Control Agent	Liquid	N/A	22	C	3.5-4.5	6
14	CM-P5822	Microbial Control Agent	Liquid	N/A	N/A	N/A	2.0-5.0	12
15	CM-P8108	Softening Agent	Liquid	3809-92-00	N/A	C	4.0-5.5	12
16	CM-P3115	Colloidal Silica Soultion	Liquid	3824-10-00	11	A	10.5-12.0	6
	CM-P3150			3824-10-00	14.5	A	10.5-12.0	6
17	CM-P6900	Cationic Etherification Agent 69% (CTA69%)	Liquid	3327-22-8	69	C	2.0-6.0	12
	CM-P6905			3327-22-8	69	C	2.0-6.0	12
18	CM-P6901	Sanitizing Spray (NMAD)	Liquid	N/A	N/A	N/A	6.0-7.5	30
	CM-P6902			N/A	N/A	N/A	6.0-7.5	30
	CM-P6903			N/A	N/A	N/A	6.0-7.5	30
	CM-P6904			N/A	N/A	N/A	6.0-7.5	30

Ionicity charge (A: Anion, C: Catonic, Am: Amphoteric N: Nonionic)

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Alkyl ketene dimer (AKD) is most common neutral/ alkaline sizing agent. It is an Internal sizing agents. Structurally, it is unsaturated lactones and it is synthesized from fatty acids. Physically it is waxy like milky emulsion chemicals. It has less corrosive to the papermaking machine than acid sizing. For cultural paper and packing paper.

CM Chemical has developed the following products.

Model	CM-P1110	CM-P1120
Appearance	Milky white liquid	Milky white liquid
Solid Content (%)	15.0 ± 1.0	18.0 ± 1.0
Viscosity (mPa·s)	≤ 30	≤ 50
pH	2.0 - 6.0	2.0 - 6.0
Ionicity	Cationic	Cationic
Shelf Life	3 Months	3 Months

Advantage

- Alkaline sizing system reduces corrosion of paper machine equipment.
- Less foam produced by the approach system than the acidic rosin system.
- AKD pulp sizing cost less than rosin sizing.
- Hard- sizing can be applied, and the stocking sizing degree is proportional AKD usage.

Features

- Mature production process, easy application, simple adding equipment.
- High self-retention, good sizing effect, fast curing rate.
- Strong anti-interference and good stability.

Good anti-moisture effect for the paper, can effectively prevent the reduction of RCT.

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Surface Sizing Agent is a synthetic copolymer of high molecular emulsifier and styrene ester monomer. It mixes well with starch and provides the starch coating with excellent cross-linking strength and hydrophobic property. It's featured by low consumption, free odor, low foaming, long foam inhibition period and excellent film forming, and it can significantly improve the water resistance capability and ring pressure strength of corrugated paper and cardboard paper. It is a sufficient substitute for internal sizing agent and has no maturation period. It is applicable to various types of surface sizing machines.

Model	CM-P1360	CM-P1380	CM-P1811
Appearance	Acrylic dispersion	Acrylic dispersion	Acrylic dispersion
Solid Content (%)	30.0 ± 2.0	30.0 ± 2.0	25.0 ± 2.0
Viscosity (mPa·s)	≤ 50	≤ 50	≤ 150
pH	2.0 - 4.0	2.0 - 4.0	2.0 - 4.0
Ionicity	Cationic	Cationic	Anionic
Shelf Life	6 Months	6 Months	6 Months

Advantage

CM-P1360, CM-P1380

Low consumption, low sizing than internal (pulp) sizing and AKD type of surface sizing. The paper can be fully cured after reeling down. Strong water-resistant performance.

CM- P1811

Enhancing the surface of paper by increasing its wet pick strength. Improve the water-resistant performance of paper. CM-P1811 could be used in combination with optical bleaching agent. Reducing the linting and improving the printability of paper.

Features

- The cationic surface sizing agent needs some aluminum sulfate to perform well.
- The product series adapt to all high and low speed paper machines.
- Good Moisture Resistance, effectively prevent the reduction of RCT.
- Anionic the surface strength for culture for cultural paper.

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Dry strength agents are multifunctional chemicals which are widely used both to enhance paper / paperboard strength such as bursting, compressing, tensile, and internal bond strength etc. and to improve drainage and retention of fiber, fines and filler. We have many Dry strength agents that can provide the papermaker a product to meet a wide variety of needs for improved dry strength.

Model	CM-P1360	CM-P1380	CM-P1811	CM-P1812
Appearance	Acrylic dispersion	Acrylic dispersion	Acrylic dispersion	Acrylic dispersion
Solid Content (%)	30.0 ± 2.0	30.0 ± 2.0	25.0 ± 2.0	25.0 ± 2.1
Viscosity (mPa·s)	≤ 50	≤ 50	≤ 150	≤ 100
pH	2.0 - 4.0	2.0 - 4.0	2.0 - 4.0	5.5 - 7.5
Ionicity	Cationic	Cationic	Anionic	Anionic
Particle size (nm)	72	67	-	-
Shelf Life	6 Months	6 Months	6 Months	6 Months

Advantage

- Excellent dry strength performance from a low addition rate to a high addition rate of dry strength agent.
- The dry strength performance increases accordingly with the dosages increase. A small addition rate can also produce high-strength paper.
- It can display good dry strength performance in a system with a large amount of anionic trash or with high electrical conductivity.
- Good retention and drainage performance.

Features

- Larger molecular size higher branching degree, larger contact area with the pulp fiber, so the bonding points are increased.
- Help to increase the adhesion of dry strength agent in the system of a large amount of anionic trash and less foam-forming.
- Can be widely used in low strength to high strength cardboard papermaking systems.

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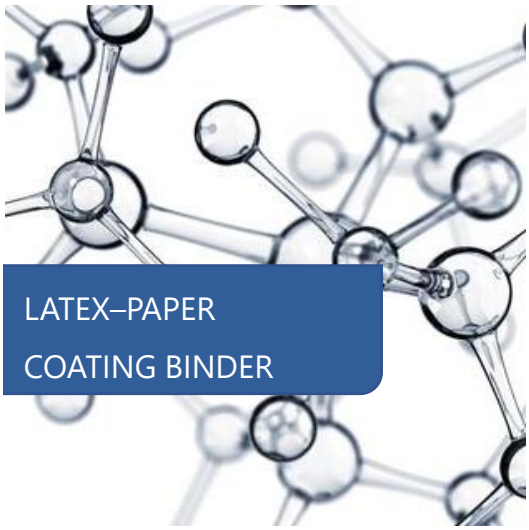

SB Latexes modified compolymers of styrene (hard monomer) and butadiene (soft monomer) at varying ratios ranging from 40/60 to 80/20. It is often used as paper coating binders and could provide high biding strength, printability and runnability. Its low odor and low VOC content meet FDA and BFR standards, and it can be widely used in coated board, specialty paper, etc.

Model	CM-P7701	CM-P7717
Chemical Property	Latex for pre-coating	Latex for top-coating
Appearance	White liquid	White liquid
Solid Content (%)	50.0 ± 1.0	50.0 ± 1.0
pH	5.0 - 8.0	5.0 - 8.0
Specific Gravity	1.02 ± 0.05	1.05 ± 0.05
Viscosity (mPa·s)	≤ 500	≤ 500

Advantage

- Easily mixing with other materials.
- Able to form into a thin film.
- Foaming like a fresh cream with mechanical shear force.

Features

- High bonding Strength.
- Greater coating gloss and ink gloss.
- Good ionic stability.
- Good compatibility with other coating component.
- Good runnability on any type of coating machinery.
- Good high-shear rheology.

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Wet strength agent are water-soluble polymer products. The most commonly used solutions are formulated with polyamide-epichlorohydrin (PAE) resin chemistry and are intended primarily for the consumer market. PAE resins function in neutral/alkaline papermaking processes. They have a high level of Wet strength agent permanence, help improve machine efficiency and do not adversely affect paper absorbency.

Wet strength agent work during the curing process, when the functional groups on the polymer react with cellulose fiber to form a covalent bond. The polymer molecules cross-link, forming a network in the cellulose web that provides strength when the paper becomes wet.

Model	CM-P3721	CM-P3725
Chemical Property	Polyamide Epichlorohydrin (PAE)	Polyamide Epichlorohydrin (PAE)
Appearance	Light amber (or yellow)	Light amber (or yellow)
Ionicity	Cationic	Cationic
pH	3 - 6	3.5 ± 1
Specific Gravity	1.08 ± 0.01	1.08 ± 0.01
Solid Content (%)	12.5 ± 1	24.5 -27.5
Viscosity (mPa·s)	20 - 70	150 ± 100

Advantage

- Paper production efficiency: After using the product, the paper production efficiency will be improved.
- Wet strength effect: Easy to absorb water, with obvious anti-scratches effect.
- With excellent performance of keeping lustre and color, do not reduce the whiteness of original fiber.
- With stable chemical properties and good compatibility.

Features

The product has good characteristic to reduce the problem of dropping off powder which is can widely used in the tissue, package paper, culture paper and other kinds of wet strength of paper production.

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Liquid Polymer Additives

Retention & Drainage agent is a water-soluble, linear polymer organic polymer.

The product is used in paper production, and it can enhance the filter effect of the network, and increase fines retention.

Solid Retention Polymer

Retention & Drainage agent is a water-soluble, linear organic polymer.

Could enhance the drainage of the wire, improve the retention of small fibers

Model	CM-P3110	CM-P3500
Chemical Property	Cationic polyacrylamide (cPAM)	Cationic polyacrylamide (cPAM)
Appearance	Flowing, white emulsion	Solid, white powder paticles
Ionicity	Cationic	Cationic
pH	2..0 - 4.0	-
Specific Gravity	1.02	-
Solid Content (%)	4 - 16	≥ 88
Viscosity (mPa·s)	≤ 50	-

Advantage

- Improve the quality of the paper, such as bonding strength, tensile strength.
- Save cost by increasing filler retention.
- Improve whitewater circulation system.
- Improve paper formation.
- Improve drainage efficiency.

Features

The best retention of fine particles and colloids in the papermaking process normally occurs when the zeta potential is near to zero and retention aid doing that. The main functions of retention aid are following:

- Improve the quality of the paper, such as bonding strength, tensile strength.
- Reduced wet-end additives and sizing usage.
- Improves paper machine runnability

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ANIONIC POLYACRYLAMIDE

The polyacrylamide powder particles with anionic charge is suitable for different papermaking sewage floatation solid-liquid separation and sludge filtration dehydration according to the degree of hydrolysis.

CATIONIC POLYACRYLAMIDE

According to the different degrees of cation, the cationic charge of polyacrylamide powder particles are applied to different papermaking sewage flotation and sludge filtration. For the solid-liquid separation of papermaking wastewater, cationic polyacrylamide can effectively collect the solid content to form large and strong floc which can achieve ideal air flotation and sedimentation effect to ensure. The clarity of the filtrate. For the sludge filter dehydration, cationic polyacrylamide can effectively help form large and strong floc to remove water in the sludge and improve the dryness of sludge residue.

Model	CM-P4126	CM-P4215
Chemical Property	Polyacrylamide	PolyacrylImide
Appearance	Solid, White powder	Solid, White powder
Ionicity	Anion	Cation
pH	-	4.0 - 8.5
Solid Content (%)	≥ 88	≥ 88
The degree of hydrolysis	≥ 8	≥ 10
Number of molecules (every ten thousand)	≥ 800	800 - 1200
Stacking density (g/cm^3)	-	0.5-0.7
Dissolution time (min)	≤ 60	≤ 50

Advantage

- Removal of heavy metals and chemicals.
- Residual protection against contamination.
- Visual improvement of water and acceptability.

Features

Cationic and anionic flocculants and thus can be used in a wide pH range. It is suitable for the treatment of wastewater, which is difficult for a single chargeable flocculant, especially in water-soluble dye wastewater decolorization.

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Defoamer is a special polyether compound defoamer for papermaking. It has de-foaming and antifoaming properties with strong surfactant action and long duration. It can control the whitewater system foam of newsprint, cultural paper and wrapping paper machine, improve the dewatering ability, and control the foam of the sizing system without affecting the sizing performance. This product is free of mineral hydrocarbons and is an eco-friendly product.

Model	CM-P5120	CM-P5129	CM-P5130
Appearance	Milky whiter liquid	Milky white liquid	Milky white liquid
pH	6.0-8.0	6.0-8.0	5.0-7.0
Specific Gravity (g/ml)	0.90 - 1.05	0.90 - 1.05	0.90 - 1.05
Viscosity (mPa·s)	< 1000	< 1000	< 1000

Advantage

- Defoamer has strong de-foaming, anti foaming and degassing capabilities and lasts for a long time.
- Defoamer has good compatibility and does not conflict with other chemicals in the papermaking system.
- Can effectively improve dehydration, reduce pinholes and bubbles on paper, reduce the frequency of paper breaks, and improve production efficiency.
- Can improve the retention rate and reduce the load on the pump, pressure screen.

Features

Defoamer product is a low viscosity and a facility to spread rapidly on foamy surfaces. It has affinity to the air-liquid surface where it destabilizes the foam lamellas. This causes rupture of the air bubbles and breakdown of surface foam. Entrapped air bubbles are agglomerated, and the larger bubbles rise to the surface of the bulk liquid more quickly.

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CM Chemical independently researched and developed deinking agent according to the current deinking waste paper with environmental protection considerations, it is a new generation of deinking agent product with excellent deinking effect. CM Chemical could provide excellent waste paper deinking solution for paper mills.

Model	CM-P9115	CM-P9131
Chemical Property	Solid fatty acid salt soap deink agent	Liquid advanced alcohols derivative deink agent
Appearance	White or yellow flaky solid	Yellow liquid
Ionicity	Anionic	Nonionic
Solubility	Dissolved with hot water	Dissolved with hot water
Water Content	≤ 18%	-
Fatty Acid Content	70 ± 10%	-
pH	-	5.0 - 6.8
Density	-	1.00 - 1.10 g/ml

Advantage

- The Basic material of CM-P9115 is purified palm oil, so it displays clean color.
- CM-P9131 is based on higher grade alcohols, then polymerized by EO/PO.
- Environmentally friendly products help to improve the whiteness and retention of fiber.

Features

The product can be effectively dispersed in the fine pulp black pulp, color ink from the paper fiber surface, and the form of emulsion dispersed in water; dissolved in the ink of oily substances. So that carbon black, pigments and other tiny particles and paper fiber loss of adhesion in order to disperse in aqueous solution to achieve the purpose of removing the ink.

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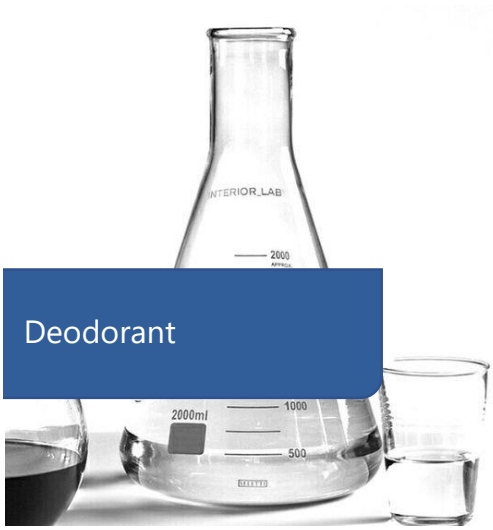

Deodorant

Deodorant is odor eliminating agent used in various production processes.

Deodorant can make stable compound by react with sulfur in the odor. Deodorant can effectively deal with formaldehyde, acetaldehyde, sulfur dioxide, Hydrogen sulfide, mercaptans and various solvents and reduce the environmental pressure caused by odors effectively.

Model	CM-P4700	CM-P4701	CM-P4702	CM-P4703
Appearance	Yellow transparent liquid	White powder	Light yellow to green liquid	Reddish brown liquid
pH	2.0 ± 1.0	2.0 ± 1.0	-	7.0 - 9.0
Specific Gravity	0.90 - 1.10	0.95 - 1.10	-	-
Viscosity (mPa·s)	< 200	-	-	-
Solubility	Soluble in water	Soluble in water	Easy to mix with water	Easy to mix with water

Advantage

- Deodorant is able be to react with most odor-source gases in paper mill, such as hydrogen sulfide, methyl mercaptan and ammonia.
- Deodorant is a reactive deodorant which is completely different from the commercial aromatic hydrocarbon covering deodorant.
- Deodorant comes into effect quickly, long lasting, green, non-toxic, safe to use, and can adapt to wide range of pH values.

Features

Deodorant is a broad-spectrum deodorant which solve the odor problem in recycled pulp, paper and sewage (waste water) treatment sections in paper mills.

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Adding fillers can reduce papermaking costs and improve functional properties such as appearance, smoothness, whiteness, opacity, etc. Therefore, increasing the filler content of paper has always been a goal pursued by paper and board manufacturers. However , an increase in fillers usually leads to a decrease in retention and paper strength. Our filler strength agent can reduce these negative effects by modifying the fillers.

Model	CM-P4780	CM-P4781
Chemical Property	Modified Polyamine	Modified Polyamine
Appearance	Liquid	Liquid
Ionicity	Cationic	Amphoteric
pH	4.0 - 6.0	3.5 - 5.5
Specific Gravity	1.02 ± 0.05	1.05 ± 0.05
Solid Content (%)	≥ 8	≥ 14
Viscosity (mPa·s)	≤ 20000	≤ 100000

Advantage

- Improve the quality of the paper such as bonding strength, tensile strength.
- Increase the filler content while maintain strength and opacity of the paper.
- Improve filler retention, which is conductive to forming and drainage.
- Improve the whitewater circulation system.
- Improve drainage efficiency.

Features

- Reduce the influence of filler on the binding force between fiber and fiber.
- Fiber with small particle size forms a micro-polymer itself.

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Sludge recycling aid are modified polymer specially developed for the recycling of paper sludge. The products flocculate and adhere in organic and organic fine particles in the sludge, reduce the surface area of the sludge particles, increase the interweaving area of the fibers and the hydrogen bonding sites between fibers and fibers, thereby reducing the risk of paper strength down due to sludge recycling. The improvement of sludge particle size can help the paper sludge to be better retained in the paper sheet, making it possible to recycle the paper sludge.

Model	CM-P4708	CM-P4718
Chemical Property	Modified polymer specially	Modified amphoteric polyacrylamide polymer
Appearance	Off-white liquid	White or light yellow liquid
Ionicity	Cationic	Amphoteric
pH	4.0 - 5.0	4.0 - 5.0
Specific Gravity	1.02 ± 0.05	1.05 ± 0.05
Solid Content (%)	≥ 8	≥ 14
Viscosity (mPa·s)	≤ 100000	≤ 20000

Advantage

- Increase the retention of recycled sludge to reduce the risk of deterioration of the wet end system due to reuse of sludge.
- Increase the amount of reused sludge without influencing the normal operation of the paper machine.
- Reduce the paper machine operation problems such as sticky cloth and press caused by the reuse of sludge.
- Reduce the impact of recycled sludge on paper quality.

Features

- Larger molecular size higher branching degree, larger contact area with the pulp fiber, so the bonding points are increased.
- Help to increase the adhesion of dry strength agent in the system of a large amount of anionic trash and less foam-forming.
- Can be widely used in low strength to high strength cardboard papermaking systems.

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Model	CM-P5510
Appearance	Light yellow transparent liquid
Solid Content (%)	≥ 22
Specific Gravity	1.05 - 1.15
pH	3.5 ± 1.0
Ionicity	Cationic
Solubility	Soluble in water

Adhesive control agent is a high-density cationic quaternary ammonium salt. With its strong cationic charge, Adhesive control agent removes the anionic trash in the papermaking system to the fiber surface and out of the paper machine circulation system before re-flocculation occurs. (Anionic Trash: Adhesives like printing inks and resins become fine and fine particles after heat dispersion or grinding.) So the cleaning intervals of the paper machine net and press section is prolonged and the production of the paper machine is improved. (Reduce sticky spots on the paper surface, reduced paper breaks) Adhesive control agent control the resin barrier and flocculation of the adhesives in the papermaking process, reduce the wastewater treatment load, and also reduce dosage of pulp sizing agent.

Advantage

- CM-P 5510 trap and flocculate anionic particles such as colloidal particles, hot-melt particles, asphalt, and ink in papermaking systems, especially in waste paper systems.
- CM-P 5510 reduce the surface activity and stability of anionic particles with its cationic charge.
- CM-P 5510 help to purify pulp, improve pulp retention, reduce paper breaks and paper defects.

Features

- The adhesion of resin components in pulp and waste paper pulp can be reduced, and they can be effectively fixed on the pulp.
- Reduce downtime and yield loss caused by sediment cleaning.
- Improve the speed and quality of paper machine.
- It is easily soluble in water and produces fewer bubbles.

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CM Chemical could provide full set microbial solutions for papermaking system, which will effectively help paper mills to reduce number of shut down cleaning, reduce quality problems caused by microbiological reasons, and improve the operating efficiency of the paper machine. Microbiological control agent is non-oxidizing bactericide of othiazolone derivatives and has excellent anti corrosion properties under both acidic and alkaline conditions. Microbiological control agent Control the bacterial sludge caused by bacteria and mold in the papermaking process.

Model	CM-P5822
Appearance	Liquid, green to blue
Flash Point	> 93
Freezing Point	-2 °C
Specific Gravity	1.01 - 1.05
pH	2.0 - 5.0
Solubility	Soluble in water

Advantage

- CM-P5822 ingredients are certified by the US Food and Drug Administration FDA.
- CM-P5822 is a broad-spectrum antiseptic and is effective against both bactericide and mold.
- CM-P5822 is applied for wide range pH (3.0 – 9.0).
- CM-P5822 can be used with chlorine-containing bactericide for long time efficacy.

Features

- Increase efficiency in a variety of applications.
- Protect capital equipment.
- Increase operating efficiency.
- Increase profitability.

CHENG MING CHEMICAL (THAILAND) CO., LTD.
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http://www.cm-chemical.com/

Recycled pulp is used to make toilet paper frequently. However, this kind of paper is hard, so it cannot meet consumer's needs of soft paper.

CM Chemical developed the softener, in order to meet to the consumers needs. Addition to pulp makes clearance in paper layers to make alignment of surface active agent on pulp slippery, which provides softness gentle to the skin.

Model	CM-P8108
Appearance	Yellowish brown liquid
pH: 5% solution	4.0 -5.5
Density	0.80 - 1.10 g/mL
Water Solubility	Emulsifiable
Shelf Life	12 Months

Advantage

- It can improve softness, looseness and drape of paper.
- It can be used in production of paper for daily use which have high ratio of recycled fiber, can reduce strength performance.
- It can be used in cationic chemical system without interfering with the efficacy of negative additives such as dyes or positive additives such as wet strength agent.

Features

- Decreased coefficient of friction of the paper.
- Increased perception of surface softness.
- Adhesion to pulp produces efficient flexibility effect.

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Colloidal silica can be used as one component of microparticle retention systems in the "wet end" of paper manufacturing. Typically, a high surface area colloidal silica is used with a cationic starch, poly-acrylamide, or other cationic polymer to flocculate cellulosic fibers for use in the papermaking process. An optimized process will result in higher retention of fiber and improved water drainage on the web.

Model	CM-P3115	CM-P3150
Appearance	Colorless Turbid Liquid	Milky white liquid
pH	10.5 - 12.0	10.5 - 12.0
Solid Content (%)	11	14.5 ± 0.05
Density	1.05 - 1.15 g/cm^3	1.05 - 1.15 g/cm^3
Shelf Life	6 Months	6 Months

Advantage

- Ink colors and images hold to surfaces better and are less likely to penetrate the material below.
- Images printed on paper treated with colloidal silica are crisper and clearer.
- It is used to enhance the frictional and printing properties.

Features

- It facilitates flocculation of cellulose fibers for use in the papermaking process.
- Higher retention of fiber and improved water drainage on the web.
- Increases the dry strength of paper products.

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It is mainly used as liquid cationic etherifying agent to modify cellulose, cellulose derivatives and starch. When reacted with amylum ,cationic starch can be produced, which can be used as internal gel painting adhesive, paper strengthening agent as well as the aid for packing and fine fiber retention aid.

Model	CM-P6900	CM-P6905
Appearance	Colorless Liquid	Colorless Liquid
Assay (wt%)	≥69%	≥69%
Viscosity (CP)	>500	>4000
pH	2.0 - 6.0	2.0 - 6.0
ECH (Epichlorohydrin)	5 ppm	5 ppm
DCP (1,3-Dichloropropanol)	20 ppm	20 ppm
Shelf Life	12 Months	12 Months

Advantage

- The exterior of the product is transparent liquid; it is colorless and tasteless. And has low impurity content, less than 20 ppm.
- The product quality is stable because of adopting continuous production process.
- The reactivity is high, up to 80%.

Features

- It is used for modifying (etherifying) starch, cellulose and related compounds, then these products changed to be cationic materials.
- In alkaline conditions, CTA can react with hydroxyl of the material molecule. As CTA is cationic product, so the material is cationic after reacting with CTA.
- With cations, properties of adhesion, affinity to anionic substance, solubility of water –insoluble substances and solubility of water-insoluble will be obviously improved.

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Chlorine dioxide is a powerful oxidizing disinfectant that is able to inhibit enzymes on virus cell membranes quickly and reduce the virus spread out effectively. Certificated by SGS and TAF -- It is not irritate the skin and no oral toxicity.

Model	CM-P6901	CM-P6902	CM-P6903	CM-P6904
Appearance	Colorless Liquid	Colorless Liquid	Colorless Liquid	Colorless Liquid
Relative density (water = 1)	1.0 - 1.1	1.0 - 1.1	1.0 - 1.1	1.0 - 1.1
Viscosity (mm^2/s)	1.1 - 10	1.1 - 10	1.1 - 10	1.1 - 10
pH	6.0 - 7.5	6.0 - 7.5	6.0 - 7.5	6.0 - 7.5
Titanium Dioxide	10 mg/m^3	10 mg/m^3	10 mg/m^3	10 mg/m^3
Chlorine Dioxide	0.1 ppm / 0.28 mg/m^3	0.1 ppm / 0.28 mg/m^3	0.1 ppm / 0.28 mg/m^3	0.1 ppm / 0.28 mg/m^3
Packaging	50 mL spray Bottle	100 mL spray Bottle	500 mL Bottle	20 Liter Plastic Drum

- WHO specifies the first-level disinfectant
- SGS proves-it is able to inhibit various virus.
- TAF proves- harmless to eyes, mouth and skin
- Alcohol-free and fragrance-free.
- No residue, no pollution on skin or environment.
- No Carcinogen and No adverse impact for pregnant women

Features

- It can be sprayed on hands for protection.
- It can be sprayed on various supplies, such as the toy, door handle, mobile phone, toilet lid, faucet.
- When the mask cannot be replaced the new one temporarily, it can be sprayed on its front and back side to extend the life time.

CASE STUDY

CMC
CHENGMING-CHEMICAL