



AnyCoat®

From Nature, Beside You

Since
its founding,
Samsung Fine Chemicals
has grown along with the Korean
chemical industry. We have developed
into a world leader by extending ourselves into
a variety of fields, from intermediate materials and basic
chemical products to high value-added fine chemicals and
Advanced Electronic Chemical Materials. Not satisfied with these
achievements, SFC is preparing to make another leap forward. We
have announced the slogan "Fine Creation for The Future", which
represents SFC's vision and its commitment to develop advanced
materials for a better tomorrow, and to strengthen our position
as a Advanced Materials Company. We have established a
foundation for steady growth by increasing production lines and
developing new uses for our products. Samsung Fine Chemicals
business is composed of three categories; General Chemicals,
Fine Chemicals, and Electronic Chemical Materials. Being a part
of our Fine Chemicals division, AnyCoat® has been more widely
used as an excipient for the pharmaceutical, nutraceutical, and
food industries due to its efficient and stable functionalities,
meeting various needs of customers. Expanding the
scope of applications along with strengthening
the quality of our existing products,
Anycoat® will fit your diverse
formulation
needs.

AnyCoat[®]

AnyCoat[®] Is

AnyCoat[®] is a cellulose ether derivative.

AnyCoat-C is Hypromellose (Hydroxypropylmethylcellulose) and AnyCoat-P is Hypromellose Phthalate (Hydroxypropylmethylcellulose phthalate).

AnyCoat[®] is produced in GMP manufacturing facility, and is compliant with USP/NF, EP, JP, KP, and etc.

Besides, AnyCoat[®] has certificate of Kosher, and ISO.



AnyCoat-C comes in diverse viscosity ranges from 3 to 200,000 cps, and it can be widely used for the tablet coating, granulation, binder, thickener, stabilizer and making vegetable capsule.

AnyCoat-P can be widely used for the enteric coating agent to shield APIs against the degradation by gastric acid or keeping them from bringing about side effects in the stomach.

Certificates of AnyCoat[®]

Certificate	Agency	Remarks
Approval of medicine manufacturing	KFDA ¹⁾	
Kosher Certificate	Orthodox Union	Annual inspection
GMP Certificate	KFDA ¹⁾	Annual inspection
ISO 9001: 2000 Certificate	KSA ²⁾	Annual inspection
DMF ³⁾	US FDA	Hypromellose Hypromellose Phthalate

¹⁾ Korea Food and Drug Administration
²⁾ Korean Standards Association
³⁾ Drug Master File

Other Certificates and Statements of AnyCoat[®]

- TSE/BSE Certification
- Non-GMO Certification
- Allergen statement
- Residual pesticide statement
- Residual solvent statement

AnyCoat-C



General Characteristics

CAS number	9004-65-3
Chemical name	Cellulose, 2-hydroxypropyl methyl ether
Generic name	Hypromellose, Hydroxypropylmethylcellulose
Molecular weight	10,000 ~ 1,000,000
Melting point	190 ~ 230°C (Tg 170~180°C)
Gelling temperature	40 ~ 90°C
Auto-ignition point	360°C
Bulk density	0.30 ~ 0.52 g/ml
Angle of repose	35 ~ 44°
Admission to compendium	USP/NF, EP, JP, KP, CODEX, JECFA, FCC, etc. (Kosher certified, GRAS listed)

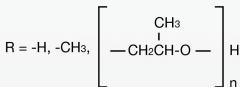
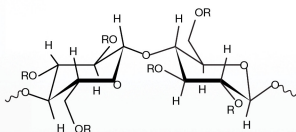


Specifications

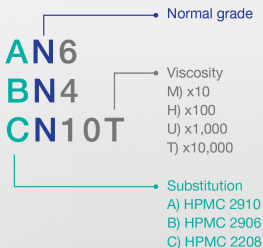
Test	USP 34/NF29	EP7	JP16
Identification	+	+	+
Characters		+	
Appearance of solution		+	
pH (2% w/w solution)	5.0 ~ 8.0	5.0 ~ 8.0	5.0 ~ 8.0
Apparent viscosity			
< 600cps	80 ~ 120%	80 ~ 120%	80 ~ 120%
≥ 600cps	75 ~ 140%	75 ~ 140%	75 ~ 140%
Loss on drying	≤ 5.0%	≤ 5.0%	≤ 5.0%
Residue on ignition	≤ 1.5%	≤ 1.5% (sulfated ash)	≤ 1.5%
Heavy metals	≤ 20ppm	≤ 20ppm	≤ 20ppm
Methoxyl content			
Type 2208	19.0 ~ 24.0%	19.0 ~ 24.0%	19.0 ~ 24.0%
Type 2906	27.0 ~ 30.0%	27.0 ~ 30.0%	27.0 ~ 30.0%
Type 2910	28.0 ~ 30.0%	28.0 ~ 30.0%	28.0 ~ 30.0%
Hydroxypropoxyl content			
Type 2208	4.0 ~ 12.0%	4.0 ~ 12.0%	4.0 ~ 12.0%
Type 2906	4.0 ~ 7.5%	4.0 ~ 7.5%	4.0 ~ 7.5%
Type 2910	7.0 ~ 12.0%	7.0 ~ 12.0%	7.0 ~ 12.0%

+ : The detailed account omitted.

Chemical Structure



Grade Nomenclature



Functional Categories

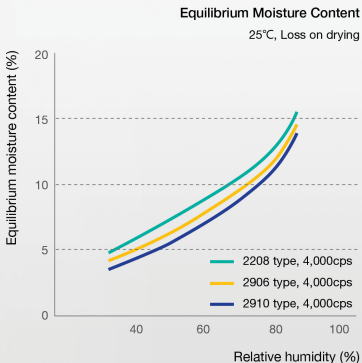
	Effect	Usage	Recommendable grade
Coating agent	Once soluble in water and volatilized through solvent, AnyCoat® makes transparent film with high tensile strength	1 ~ 3% (coating solution 2 ~ 20%)	AN (low viscosity)
Granule (tablet) binder	AnyCoat® enhances binding power	2 ~ 5 %	AN (low viscosity)
Sustained release agent	Hydrophilic matrix used along with AnyCoat® hydrates to create a gel layer, controlling drug release pattern	10 ~ 80%	CN (high viscosity)
Thickening agent	The viscosity of AnyCoat® exponentially increases in relation to the concentration	0.25 ~ 5.0%	AN, BN, CN (low & high viscosity)

Properties of AnyCoat-C Powder

Equilibrium Moisture Content in Relation to Relative Humidity

Equilibrium moisture content refers to the moisture content of AnyCoat-C powder which reaches equilibrium while exposed to specifically set relative humidity for long.

The figure below is used as an indicator to predict the moisture content of AnyCoat-C stored for long.



Properties of AnyCoat-C Solution

Concentration & Viscosity Relationship

The concentration and viscosity are interrelated, and can be predicted using the following equation.

$$\eta = (1 + KC)^B$$

η : viscosity (cps)

K : constant for each individual polymer

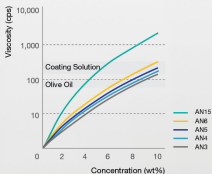
C : concentration (%)



Concentration/Viscosity Relationship

600cps under : Ubbelohde viscometer,

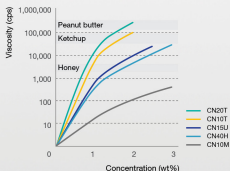
600cps over : Brookfield viscometer, 20°C



Concentration/Viscosity Relationship

600cps under : Ubbelohde viscometer,

600cps over : Brookfield viscometer, 20°C






AnyCoat-P

General Characteristics

CAS number	9050-31-1
Chemical name	Cellulose, 2-hydroxypropyl methyl ether phthalic acid ester
Generic name	Hypromellose phthalate, Hydroxypropylmethyl- cellulose phthalate
Molecular weight	20,000 ~ 100,000
Melting point	190 ~ 230°C (Tg 170~180°C)
Bulk density	0.31 ~ 0.42 g/ml
Angle of repose	33 ~ 38°
Admission to compendium	USP/NF, EP, BP, JP, KP etc.



Specifications

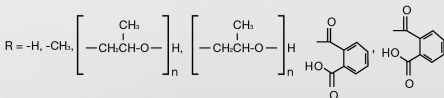
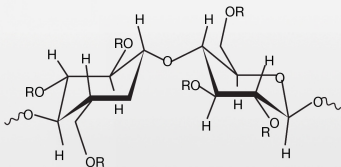
Test	USP 34/NF29	EP7	JP16
Identification	+	+	+
Characters		+	
pH	5.0 ~ 8.0	5.0 ~ 8.0	5.0 ~ 8.0
Apparent viscosity	80 ~ 120%	80 ~ 120%	80 ~ 120%
Loss on drying	≤ 5.0%	≤ 5.0%	≤ 5.0%
Residue on ignition	≤ 0.2%	≤ 0.2% (Sulfated ash)	≤ 0.2%
Heavy metals	≤ 10ppm	≤ 10ppm	≤ 10ppm
Chlorides	≤ 0.07%	≤ 0.07%	≤ 0.07%
Phthalyl content	21.0 ~ 35.0%	21.0 ~ 35.0%	21.0 ~ 35.0%
Free phthalic acid	≤ 1.0%	≤ 1.0%	≤ 1.0%

+ : The detailed account omitted.

Chemistry of AnyCoat-P

Test	HP-55	HP-50
Substitution type	200731	220824
Viscosity (cps)	32 ~ 48	44 ~ 66
Phthalyl (%)	27.0 ~ 35.0	21.0 ~ 27.0
Insoluble in pH range	Under pH 5.5	Under pH 5.0

Chemical Structure



Functional Categories

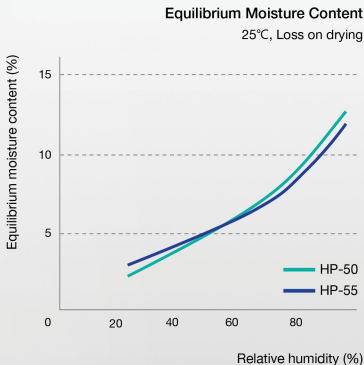
	Effects	Usage	Recommendable grade
Enteric function	Gastric resistance - Tablet coating - Granule coating - Capsule coating	4 ~ 10% 5 ~ 7% 7 ~ 12%	HP-55
Solid dispersion	Suspending aid and drug carrier	5% ~	HP-50 HP-55

Properties of AnyCoat-P Powder

Equilibrium Moisture Content in Relation to Relative Humidity

Equilibrium moisture content refers to the moisture content of AnyCoat-P powder which reaches equilibrium while exposed to specifically set relative humidity for long.

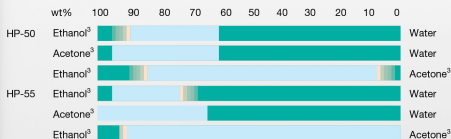
The figure below is used as an indicator to predict the moisture content of AnyCoat-P stored for long.



Properties of AnyCoat-P Solution

Solubility in Organic Solvent

AnyCoat-P should be dissolved into organic solvent for enteric coating. The solubility of AnyCoat-P based on solvent and mixing ratio, primarily used for enteric coating, is summarized on the figure below. The frequently used plasticizer for AnyCoat-P is PEG 6000~8000, triethyl citrate, acetylated monoglycerides, and so on. In general, 10 to 25% against polymer is added.



- Insoluble
- Soluble but Opaque
- Soluble and Transparent

ICH Guideline Q3C(R3)

- Class - 3 : Solvents with low toxic potential
- Class - 2 : Solvents to be limited

Application Table of AnyCoat®

Substitution type	2910 (AN)	2906 (BN)	2208 (CN)	HPMCP	Functional Category	
	3 4 5 6 15 50	4 5 40 40 (M) (H)	4 10 40 15 10 (M) (H) (U) (T)	50 / 55	Effects	Usage
T a b l e t	Film coating aqueous solvent	● ● ● ● ●			Once soluble in water and volatilized through solvent, AnyCoat® makes transparent film with high tensile strength	1-3%
	Enteric coating			●	With pH dependent profile and filmforming capability, Anycoat® helps APIs dissolve not in stomach, but in intestine	5-30%
	Sustained release			● ● ● ● ●	Hydrophilic matrix used along with AnyCoat® hydrates to create a gel layer, controlling drug release pattern	10-80%
	Binder (wet granulation)	● ● ● ● ● ● ● ●	● ●		AnyCoat® delivers binding property, and enhances the hardness of tablet	2-5%

● Highly recommended ● recommended

Application Table of AnyCoat®

Substitution type		2910 (AN)	2906 (BN)	2208 (CN)	HPMCP	Functional Category	
Viscosity Grade		3 4 5 6 15 50	4 5 40 40 (M) (H)	4 10 40 15 10 (M) (H) (U) (T)	50 / 55	Effects	Usage
L i q u i d	Thickening		● ●	● ● ● ● ●		AnyCoat® provides the thickening property. The viscosity of AnyCoat® exponentially increases in relation to the concentration	0.25~5.0%
	Suspending		● ●	● ● ● ●		AnyCoat® with hydrophobic and hydrophilic properties as well provides viscous and suspending aid	0.25~5.0%
O t h e r s	Dry syrup	● ● ● ● ● ●				Compatible with APIs, AnyCoat® dissolves well in aqueous solution, delivering thickening and suspending aid	0.25~5.0%
	Capsule making	● ● ●	●	●		AnyCoat® delivers excellent film forming and gelling property, making high quality capsule	80~97%
	Solid dispersion	● ● ● ● ● ●	●	●	●	As a suspending aid and drug carrier for solid dispersion, AnyCoat® provides excellent properties	5%~

● Highly recommended

● recommended

Package

Package

Fiber drum with polyethylene double bag inside

Net Weight

AnyCoat-C : 2910type - 25kg,

2906 & 2208type- 20kg

AnyCoat-P : 20kg

