ASHLAND

Ashland Specialty Ingredients
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Benecel™ Methylcellulose, Hypromellose and Methylhydroxyethyl Cellulose

Benecel methylcellulose, hypromellose, and methylhydroxyethyl cellulose are widely used in the pharmaceutical industry due to their ability to thicken, bind, and retain water; emulsify; suspend particulates; stabilize; and form films. These polymers are soluble in cold water and some mixed solvents, but insoluble in hot water due to thermal gelation.

Benecel MC, HPMC, and MHEC products are supplied as white to off-white, free flowing powders. Controlled release (CR) grades have a fine, narrow particle size distribution that is optimized for hydrophilic matrix tablets.

Grades

Substitution Type	Benecel™ HPMC Grade	Nominal Viscosity (mPA·s)[a]	Controlled Release Matrix	Tablet Binder	Rheology Control	Coatings
Methylcellulose	A15 LV PH PRM	15		X	X	
	A15C PHARM	1750		X	X	
	A4M PHARM	3600	X		X	
Hypromellose 2906 "F" Types	F4 PHARM	4				X
Hypromellose 2910 "E" Types	E3 PHARM	3		X		X
	E5 PHARM	5		X		X
	E6 PHARM	6		X		X
	E15 PH PRM	15		X		X
	E50 PH PRM	50		X	X	X
	E4M PHARM‡	3600	X		X	
	E10M PHARM‡	10000	X		X	
Hypromellose 2208 "K" Types	K100 LV PH PRM‡‡	100	X	X	X	
	K250 PH PRM‡‡	250	X		X	
	K750 PH PRM‡‡	750	X		X	
	K1500 PH PRM‡‡	1500	X		X	
	K4M PHARM‡	3600	X		X	
	K15M PHARM‡	18000	X		X	
	K35M PHARM‡	35000	X		X	
	K100M PHARM‡	100000	X			
	K200M PHARM‡	200000	X			
Methylhydroxyethyl	ME 50 PH PRM‡‡	50	X	X		
	ME 350 PH PRM‡‡	350	X	X		
	ME 233 P PHARM	4150	X	X	X	

[a] NF/EP/JP viscosity method

‡ CR grades available

‡‡ Only CR grades available

Specifications for A/F/E/K Types

Sulphated ash ..... 1.5% max
Loss on drying ..... 5.0% max
Heavy metals ..... 10 ppm max
pH in solution ..... 5.0 – 8.0
Particle size, laser Dv90 (CR grades only) ..... 170 – 250 µm

Specifications for ME Types

Sulphated ash ..... 1% max
Loss on drying ..... 10% max
Heavy metals ..... <20 ppm
pH in solution ..... 5.5 – 8.0
Particle size, laser Dv90 (CR grades only) ..... 170 – 250 µm

Regulatory Status

All Benecel MC, HPMC, and MHEC products labeled with the PHARM and PR PRM suffixes are compliant with the monograph requirements of the current editions of the National Formulary, the European Pharmacopoeia and the Japanese Pharmacopoeia.

Packaging and Storage

The following Benecel MC, HPMC and MHEC products are supplied in multiply paper bags with polyethylene inner liner, with the following net weights:

Grades	Package weight
Type A4M PHARM, K100M PHARM, K100M PHARM CR	16 kg
Type E4M PHARM, E4M PHARM CR, E10M PHARM, E10M PHARM CR, K4M PHARM, K4M PHARM CR, K35M PHARM, K35M PHARM CR, K200M PHARM, K200M PHARM CR	18.14 kg
Type K15M PHARM, K15M PHARM CR, ME 233 P PHARM	20 kg
Type A15C PHARM	20.95 kg

The following Benecel MC, HPMC and MHEC products are supplied in sealed polyethylene bags placed in standard boxes, with the following net weights:

Grades	Package weight
Type E3 PHARM, E5 PHARM, E6 PHARM, F4 PHARM	25 kg
Type A15 LV PH PRM, E15 PH PRM, E50PH PRM, K100LV PH PRM, K250 PH PRM, K750 PH PRM, K1500 PH PRM, ME50 PH PRM, ME350 PH, PRM K15M PH PRM	18 kg

Although packaging has been designed to reduce moisture pick up, Benecel MC, HPMC and MHEC products are hygroscopic and should be stored under clean, dry conditions. The products should be used on a first-in, first-out basis.

Product Safety

Please read and understand the Material Safety Data Sheet (MSDS) before using this product.

CAS Information

CAS Name:	CAS Number:
Methylcellulose	9004-67-5
Hydroxypropylmethylcellulose	9004-65-3
Methylhydroxyethylcellulose	9032-42-2