

Eastman

cellulose esters

Versatile performing additives for flexible packaging and ink formulations

Eastman Chemical Company's cellulose ester products have been used for decades, offering multiple benefits as additives in flexible packaging and ink applications.

Performance attributes of cellulose esters

- Cellulose esters (CE) are versatile formulating tools that work in numerous printing platforms, including offset, rotogravure, flexographic, and inkjet.
- They are compatible in a wide range of solvents and readily dissolve in many common acrylate monomers.
- Increased adhesion, modified rheology, improved flow and leveling, and better transfer properties are realized when CEs are used as primary letdown vehicle resins or co-resins.
- Overprint varnishes formulated with cellulose esters provide high gloss and excellent grease resistance properties and are nonyellowing.
- CEs with lower molecular weight (Eastman Solus™ 2100 performance additive) find utility in inkjet as rheology modifiers, improving drop integrity and viscosity stability, and can help improve adhesion characteristics on a wide variety of substrates (e.g. PET).

Safer and easier to use when compared to nitrocellulose

- CEs are safer alternatives due to their nonflammability.
- They are more easily stored and handled as dry powder with a long shelf life.
- Eastman cellulose esters are manufactured under cGMP; therefore, they meet the latest industry requirements for health and safety.

Food contact compliance

- Eastman is committed to responsibly and reliably serving markets by complying with regulations that are important to manufacturers and consumers.
- Multiple Eastman CEs are compliant with Swiss Ordinance on Materials & Articles in Contact with Food (SR 817.023.21).
- The cGMP process allows latitude in ink and coating formulations that are compliant with a number of international regulations regarding direct and indirect food contact.

Table 1. Eastman cellulose esters for food packaging inks that comply with Swiss Ordinance and are produced under cGMP^a

Typical properties ^b								
Products	Viscosity ^c (s)	Acetyl content (wt%)	Butyryl content (wt%)	Propionyl content (wt%)	Hydroxyl content (wt%)	Melting temperature (°C)	Glass transition temperature (T _g , °C)	M _n ^d
Cellulose acetate butyrate								
CAB-381-0.1	0.10	13.0	37.0	—	1.3	155–165	123	20,000
CAB-381-0.5	0.50	13.5	38.0	—	1.3	155–165	130	30,000
CAB-381-2	2.00	13.5	38.0	—	1.3	171–184	133	40,000
CAB-551-0.01	0.01	2.0	53.0	—	1.5	127–142	85	16,000
CAB-551-0.2	0.20	2.0	52.0	—	1.8	130–140	101	30,000
Cellulose acetate propionate								
CAP-482-0.5	0.50	2.5	—	45.0	2.6	188–210	142	25,000
CAP-504-0.2	0.20	0.6	—	42.5	5	188–210	159	15,000
Eastman Solus™ performance additives								
Solus 2100	< 0.01	—	—	—	1.5	—	75	< 10,000

^aThese products are manufactured, stored, handled, and transported under current Good Manufacturing Practices (cGMP) for materials and articles intended to come into contact with food.

^bProperties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the listed properties. ^cASTM D817 (Formula A) and D1343 ^dNumber-average molecular weight values, M_n, are polystyrene-equivalent molecular weights determined using size-exclusion chromatography.

Eastman cellulose esters have long provided sought-after key performance attributes for inks and coatings formulators. Eastman is committed to providing ongoing solutions to the inks and coatings industry through reinvestment, adding the latest technology to existing manufacturing units to be able to supply a portfolio offering value-added and novel product design, regulatory compliance, safety, and sustainability for ink formulators into the future.

Want to know more?

Eastman's technical experts are available for guidance in product selection to enable solutions for various ink formulation needs. For more information, go to www.eastman.com/ces or contact Tonda Gladson at +(1) 423-229-4464 or tgladson@eastman.com.



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