



TS - TRUSTY&SUSTAINABLE

INTRODUCTION

Tiansheng Group is one of the largest manufacturers in China, devoted to R&D and production of cellulose ethers to provide **solutions for construction** and other applications.

Tiansheng Group develops right products to meet the demands of customers.

TS group utilizes advanced equipment and operates **three production sites** and a R&D center, equipped with full series of testing and analysis equipment.



As being a professional manufacturer of cellulose ethers, Tiansheng Group provides **full technical support**: no matter where you are, our application technicians will support you with professional knowledge and will offer you solutions if you have any application problems.

Our well equipped laboratories help us to support you with evaluation of raw materials, as well as the most suitable products selection. Moreover, **we can provide proprietary formulas, according to your application requirements.**



Our goal is to provide you with the excellent service and high quality products
We take special care about your needs

TS GROUP IN DATES&NUMBERS

TS—Trusty & Sustainable

3 factories

Customers in 96 countries

Production capacity: 30,000 mt/a

Tiansheng Group is a responsible chemical enterprise. We pay high attention to the environmental protection.



\$1,200,000 were invested to build our own wastewater treatment system



**Sustainable —
Advanced concept of the environmental protection**

- 1989 - Establishment of focused on production of oilfield additives Liaoyuan Chemical Factory;
- 2003 - The first production line of cellulose ether was founded in Puyang, Henan province;
- 2004 - The first batch of Tiansheng cellulose ethers was successfully supplied to the international market (South America, Europe, South Asia and so on);
- 2010 - Tiansheng Cellulose ethers were successfully REACH certified;
- 2012 - Tiansheng Group built a modern production base in Shandong;
- 2013 - Tiansheng Group, as one of the industry leaders, initiated and participated the preparation of the Chinese industry standard JC/T2190-2013 "Cellulose Ethers for Dry Mix Mortar for Construction".
- 2014 - Shandong Technology Center was set up to provide technical support to domestic and foreign customers.
- 2015 - We installed a new production line of hydroxyethyl methyl cellulose ether (HEMC) with the biggest capacity, the most advanced technology and imported equipment.
- 2016 - Production line of hydroxyethyl ethyl cellulose ether (HEC) was launched in Jiujiang, Jiangxi province;
- 2017 - Shandong Tiansheng Cellulose Corp., Ltd. was recognized as a "High-tech Enterprise" by the Science and Technology Commission of Heze City.

OUR PRODUCTS

HPMC

Hydroxypropyl methylcellulose

HEMC

Hydroxyethyl methylcellulose

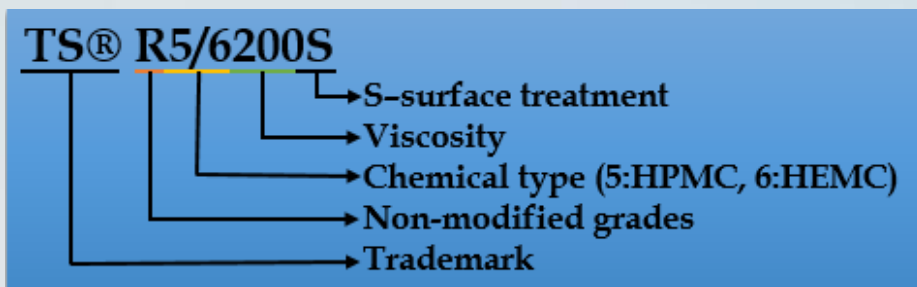
HEC

Hydroxyethyl cellulose

EHEC

Ethyl hydroxyethyl cellulose

Nomenclature of TS® Cellulose Ethers



Modified grades

TS® G/M/N

G - modified grades of HPMC, HEMC for gypsum-based mortars

M - modified grades of HPMC, HEMC for CTA, etc.

N - modified grades of HPMC, HEMC for putty

Others

D - HPMC, specially developed for detergent

T - Non-modified HEMC for construction coatings

Note: HEC and EHEC are new products for TianSheng Group, full-scale production is planned to be launched in 2020.

Viscosity range of TS™ Cellulose Ethers

TS Grades	NDJ-1 viscometer (2%, 20°C, mPa.s)	Brookfield viscometer (2%, #7, 20°C, mPa.s)
R5020/R6020	18,000-24,000	14,000-17,000
R5025/R6025	20,000-33,000	15,000-24,000
R5045/R6045	40,000-50,000	28,000-36,000
R5075/R6075	65,000-90,000	36,000-45,000
R5100/R6100	90,000-120,000	45,000-60,000
R5150/R6150	135,000-180,000	65,000-90,000
R5200/R6200	≥180,000	≥90,000
G5012	10,000-20,000	8,000-15,000
M5025	12,000-36,000	10,000-20,000
N4016	36,000-48,000	20,000-30,000
M3012	60,000-90,000	46,000-65,000
G4011	65,000-90,000	36,000-45,000
G5016	90,000-120,000	45,000-60,000
G6013	115,000-155,000	56,000-65,000
G7012	90,000-120,000	46,000-55,000
D2500NS	135,000-180,000	65,000-80,000
T2011	10,000-12,000	8,000-10,000
T2041	35,000-45,000	26,000-29,000
T2081	85,000-105,000	42,000-52,000

APPLICATION OF TS CELLULOSE ETHERS

Developed for **Adhesives** TS cellulose ethers help to achieve:
good sag resistance performance;
long open time and wetting;
long working time;
easy trowel and comb, etc.

In **Paints & Coatings** TS cellulose ethers are used as
thickeners,
protective colloids and
pigment suspension aids,
Help to improve dissolution of water based
emulsion paints and the viscosity stability.

In **Construction** TS cellulose ethers help to provide
excellent workability and water retention to tile
cements and grouts, plasters, dry wall joint
compounds, extruded mortars, underwater
concretes, etc.

Household Chemicals

Especially developed for household chemicals TS cellulose ether is a special thickener for detergent, It has the properties of thickening, foaming, emulsifying and dispersing.

Our experienced technical team is always ready to provide you with assistance. We provide basic formulations and customized production.

Cellulose Ethers in **Ceramics** provide water retention and lubricity in processing.



The use of a right grade of cellulose ether helps to:

- Improve the efficiency of mortar construction, and make mechanical construction possible for saving time & material.
- Create high quality mortar products, and give it better functions.
- Enhance the adaptability of mortar in the applied environment.

APPLICATION OF TS® CELLULOSE ETHERS



Tiansheng Group has well-equipped QC laboratory and perfect technicians to inspect raw materials, finished products and waste water.



We ensure the **consistency of product quality**, whether it is high performance special products, general standard products or economic products.



As your most trusted business partner, Tiansheng group can help you to **develop new products** that meet the needs of your region and can help you to solve problems encountered in product application.

Construction			
Application			Recommended grades
Cement based	Tile Adhesive	Normal C0	R5075, R5150, R6075, R6100 M3012
		Standard C1	R5075, R6075, R6100 M3012
		High Performance C2	R5025, R5045, R6020, R6045 M5025
	Plaster		R5045, R5075, R6045, R6075
	Skimcoat		R5075, R6075, R6100 N4016, Troeasy
	Grout for Tiles		R5025, R6020, R6045 M5025
	Waterproofing Mortar		R5045, R5075, R6045, R6075
	Masonry Mortar		R5150, R6100, R6200
	EIFS	Basecoat	R5045, R5075, R6045, R6075
		Adhesive	R5075, R6075, R6100
Gypsum based	Plaster	Machine	G7012, G6013, G4011
		Hand	G6013, G5012
	Joint Filler		G7012
	Adhesive		G7012, G5016
	Skimcoat		R5075, R6075, R6100 G5016
	Screed		R6020 G5012
	Latex Based	Coating	Interior wall
Exterior wall			T2011, T2041
Stone Paint			T2041, T2081
Stucco		Lime Based	T2041
		Cement Based	T2011, T2041
Skimcoat		T2041, T2081	
Others			
Detergent and Cosmetics			D1200N05s

PACKING&STORAGE

Packaging

TS cellulose ethers are packed in the two types of packages:

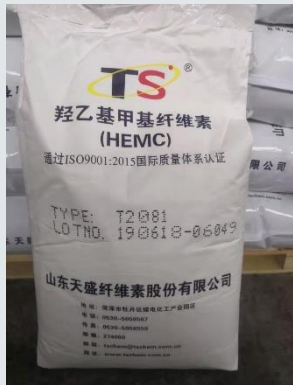
1) 25kg net multi-layer paper bag with polyethylene inner liner.

2) 500kg net Big Bags are also offered upon request.

If there is no special request, all goods are palletized for safe transportation.

For special packaging, please contact us.

PRODUCT	HS CODE	PACKAGING				SHIPMENT PORT
		MT/20'FLC	MT/40'FLC	Kg/Pkg	Kg/Pallet	
TS HPMC/HEMC (unmodified)	39123900	12	24	25	600	QINGDAO
Some of the modified grades	39123900	10	20	20	500	



Safety information

TS cellulose ethers are classified as a non-hazardous Materials. Further information on safety aspects is given in Material Safety Data Sheet.

Shelf life

At least 2 years under cool and dry condition. For material storage over shelf life, quality confirmation test should be done before use.

Storage and Transportation

TianSheng's cellulose ethers are hygroscopic and water absorbent powder products. They should be stored in the cool and dry warehouse and transported in the original packaging.

Sealing of the bags is recommended to avoid moisture absorption, once the original bags are opened for use.

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