

PRODUCT DATA

KLUCEL G

KLUCEL Hydroxypropylcellulose (HPC), Industrial Grade

Date of Issue: 39.003-E13 April 2003

Product Name: Klucel Hydroxypropylcellulose (HPC) - KLUCEL G

Description

Klucel hydroxypropylcellulose (HPC) is a non-ionic water-soluble cellulose ether with a versatile combination of properties. It combines organic solvent solubility, thermoplasticity, and surface activity with the thickening and stabilizing properties of other water-soluble cellulose polymers.

Outstanding Characteristics

Klucel HPC is soluble in many polar organic solvents and in water below 38°C, but is insoluble in water above 45°C. Klucel HPC is highly surface-active, with low surface and interfacial tensions of solutions. It has a wide range of compatibility with latexes and with synthetic and natural colloids. Klucel HPC is available in a wide range of viscosities with measurements reported at varying concentrations in water. It is thermoplastic and can be injection moulded and extruded. In films and coatings, Klucel HPC is heat-sealable, extremely flexible without plasticizers, and non-tacky at high humidity.

Uses

Klucel HPC is versatile: it is used in a wide variety of applications, including coatings, adhesives, extrusions and mouldings, paper, paint removers, encapsulations, inks and many other applications requiring a film-former, thickener, stabilizer, suspending agent, film barrier, thermoplastic, or protective colloid.

Table 1
Viscosity (a) of various Solution Types, mPa.s

Viscosity type	Concentration in water, weight %			
	1	2	5	10
H	1.275-3.500	-	-	-
M	-	3.500-7.500	-	-
G	-	125-450	-	-
J	-	-	125-450	-
L	-	-	65-175	-
E	-	-	-	250-800

(a) Viscosities determined at 25°C, using a Brookfield LVF viscometer with spindle and speed combinations depending on viscosity level.

Table 2
Typical Properties

Klucel Hydroxypropylcellulose, as shipped

Appearance	White to off-white, granular solid
Particle size, %, min.	
through U.S. 30 mesh (0,59mm sieve)	80
through U.S. 20 mesh (0,84 mm sieve)	98
Moisture content, as packed, %, max.	5,0
Softening temperature, °C	100-150
Burnout temperature in N ₂ or O ₂ , °C	450-500
Solubility	
in water	Clear, smooth solutions below 38°C
in organic solvents	Dissolves easily in many polar organic solvents to give clear to hazy solutions

Klucel Hydroxypropylcellulose solutions in water

Viscosity	See Table 1
Surface Tension (b), dynes/cm	43.6
Interfacial tension (b), in water vs. refined mineral oil, dynes/cm	12.5

(b) 0,1% concentration

Packaging and Storage

Klucel is a non-perishable powder. It is recommended to use the product in rotation on a first-in first-out basis. The product should be stored under dry and clean conditions in its original packing and away from heat. The product is hygroscopic. The packaging is selected in a way to avoid ingress of moisture, but the water content of the packed product will/may increase if not stored dry.

Klucel is packed in a fiber drum with polyethylene inner lining of 100lbs (45.36 kgs) net and 112,5lbs (51.03 kgs) gross.

Product Safety

Read and understand the Safety Data Sheet (SDS) before using this product.

CAS Number : 9004-64-2

CAS Name: Cellulose, 2-hydroxypropyl ether

Safety Data Sheet

According to 1907/2006/EC, Article 31

Klucel G Industrial

Printing date: 17.06.2008
02.05.2003

Revision:

1. Identification of Substance

Product details

- Trade name: KLUCEL G INDUSTRIAL

- Article Number: 149537

- Application of the substance/the preparation - Thickening agent

- Manufacturer/Supplier

- Emergency information
+ 44 (0) 1865 407333 NCEC (National Chemical Emergency Centre)
(24 hours)

2. Hazards Identification

- Hazard designation: void
Information pertaining to particular dangers for man and environment: void

3. Composition /Information on ingredients

Chemical characterization;

CAS No. Designation:

9004-64-2 Sepiret 989

- Identification number(s):

- EINECS Number (EC-Number): Polymer

4. First Aid Measures

General information: No special measures required.

After inhalation: Supply fresh air; consult doctor in case of complaints

After Skin contact

Instantly wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

After eye contact

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing

Rinse out mouth and then drink plenty of water.

In case of persistent symptoms consult doctor.

5. Fire Fighting Measures

Suitable extinguishing agents

CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:

Carbon monoxide (CO)

Carbon dioxide (CO₂)

- Protective equipment: Wear self-contained breathing apparatus.

6. Accidental release measures

Person-related safety precautions:

Wear protective clothing.

Product forms slippery surface when combined with water.

Measures for environmental protection: Do not allow to enter drainage system, surface or ground water.

- Measures for cleaning/collecting:

Collect mechanically.

Ensure adequate ventilation.

Dispose of the material collected according to regulations.

- Additional information: No dangerous materials are released.

7. Handling and Storage

- Handling

- Information for safe handling

Ensure good ventilation/ exhaustion at the workplace

Store in cool, dry place in tightly closed containers.

Prevent formation of dust.

Any deposit of dust which cannot be avoided must be removed regularly.

- Information about protection against explosions and fires:

Dust can combine with air to form an explosive mixture.

Protect against electrostatic charges.

Keep ignition sources away – Do not smoke.

- Storage

Requirements to be met by storerooms and containers: No special requirements.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Store under dry conditions.

8. Exposure controls and personal protection

- Additional information about design of technical systems: No further data: see section 7.

- Components with critical values that require monitoring at the workplace: Not required.

- Additional information:

The lists that were valid during the compilation were used as basis.

Take care of the TWA value for fine dust: 5mg/m³/8h

- Personal protective equipment:

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Do not inhale dust/smoke/mist.

Wash hands during breaks and at the end of the work.

Do not eat or drink while working.

Breathing equipment: Dust mask

ggf. Staubmaske

Protection of hands: Protective gloves

Check protective gloves prior to each use for their proper condition.

Material of gloves

Rubber gloves

Plastic gloves

- Penetration time of glove material

The exact break-through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- Eye protection: Tightly sealed safety glasses.

- Body protection: Protective work clothing.

9. Physical and chemical properties:

General Information	
Form:	Granulate
Colour:	Cream coloured
Smell:	Odourless
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Fusion temperature /range	100-150 °C
- Flash Point:	Not applicable
- Inflammability (solid, gaseous)	Product is not flammable
- Ignition temperature	~370 °C (Staub d·Ü)
- Danger of explosion:	Product does not present an explosion hazard.
- Critical values for explosion:	
- Lower:	156 g/m ³ (Staub d·Ü)
- Density at 30°C	1.010 g/cm ³ (2% ige Lösung d·Ü)
- Settled apparent density	500 kg/m ³
- Solubility in Miscibility with	
Water:	Soluble
Polar solvents:	Fully miscible
Non-polar solvents:	Not miscible
- pH-value (20 g/l) at 25° C:	5.0-8.5
- Viscosity:	125-450 mPas (2%ige Lös. d·Ü)
Dynamic at 25 ° C:	

10. Stability and reactivity

Conditions to be avoided: No decomposition if used according to specifications.

Dangerous products of decomposition: None

11. Toxicological Information

- Acute toxicity:

-LD/LC50 values that are relevant for classification:		
9004-64-2 KLUCEL EF PH		
Oral	LD50	10200 mg/kg (rat)

- Primary irritant effect:

on the skin: No irritant effect.

- on the eye: Mild irritation

- Sensitization: No sensitizing effect known.

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- Additional toxicological information:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12. Ecological information:

- Information about elimination (persistence and degradability):

- Other information : the product is biodegradable.

- General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

13. Disposal considerations

- Product:

Recommendation: Must be specially treated under adherence to official regulations.

- Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

14. Transport information

- Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)

- ADR/RID-GGVS/E Class :-

- Maritime transport IMDG/GGvSea:

- IMDG/GGVSea Class: -

- Air transport ICAO-TI and IATA-DGR:

- ICAO/IATA Class: -

- Transport/Additional information: Not dangerous according to the above specifications.

15. Regulatory information

- Designation according to EC guidelines:

The material is not subject to classification according to EC lists and other sources of literature known to us.

16. Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
