1. Identification of the *substance*/mixture and the company/undertaking

1.1 Product identifier:
Hacocell (all types)
Nitrocellulose with Ethanol / UN 2556

1.2 Relevant identified uses of the mixture and uses advises against:
Relevant uses: Binding agent *or film former* for the production of *coatings, inks and* paints.

1.3 Details of the supplier of the safety data sheet:
HAGEDORN-NC GmbH, *Rheiner Landstraße 195 A*, 49078 Osnabrück (Germany)
Tel.: +49 (0) 541 94044-0, Fax: +49 (0) 541 94044-43, E-Mail: hagedorn@hagedorn.de
E-Mail-address of a competent person responsible for safety data sheet: Laboratory Lingen Site +49 (0) 591 9148-22; E-Mail: labor@hagedorn.de

1.4 Emergency telephone number (24 hours):
+49 (0)551 383180 GIZ-Nord Poisons Centre

2. Hazards identification

2.1 Classification of the mixture

Flammable Solid	*Category 1*	*H228*
Eye Irritation	*Category 2*	*H319*

2.2 Label elements

Signal Word *Danger*

Hazard Statements:
H228 Flammable Solid
H319 Causes serious eye irritation.

Precautionary Statements
P230 Keep wetted with ethanol
P233 Keep container tightly closed.
P210 Keep away from heat/sparks/open flames/hot surfaces. –No smoking.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get Medical attention.
P370+ P378 In case of fire: Use only water for extinction.

2.3 Other Hazards
Nitrocellulose can be ignited by flame, heat, shock, impact, friction, sparks or static electricity.
Under certain conditions burning or decomposing nitrocellulose may produce toxic fumes (see section 5).
Nitrocellulose decomposes in contact with strong acids and strong alkalis.

3. Composition / Information on ingredients

3.2 Mixtures

Mixture of Nitrocellulose with phlegmatizing agent

Substance	%	CAS No.	EC Number	Index No.	*REACH Registration No*	*Classification according to Regulation (EC) No 1278/2008 (CLP)*
Nitrocellulose (cellulose nitrate)	65-75	9004-70-0	Not applicable	603-037-00-6	*Not applicable*	*Exp 1.1 H201*
Ethanol	25-35	64-17-5	200-578-6	603-002-00-5	*01-2119457610-43*	*Flam Liq 2 H225* *Eye Irrit 2 H319*
2-Propanol	< 2 %	67-63-0	200-661-7	603-117-00-0	*01-2119457558-25*	*Flam Liq 2 H 225* *Eye Irrit 2 H 319* *STOT SE 3 H 336*

4. First Aid Measures

4.1 Description of first aid measures

Inhalation of vapours & materials of combustion:
Remove to fresh air. If not breathing, give artificial respiration.
If breathing is difficult, give oxygen. Immediately, call a physician.

Skin contact:
Immediately flush skin with plenty of water.
Remove contaminated clothing.
Call a physician if irritation persists.
Wash clothing before reuse.

Eye contact:
Immediately flush eyes with an eye-wash-solution or plenty of water, holding the eye-lids apart for at least 10 minutes. Call a physician.

Ingestion:
Do not induce vomiting.
Give large quantities of water.
Never give anything by mouth to an unconscious person.
Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed
Exposure to vapours or materials of combustion may give rise to headache, dizziness, drowsiness, nausea and delayed breathing difficulties. Eye pain redness, tearing, swelling of eyelids, itching. Prolonged skin contact may result in irritation.

4.3 Indication of any immediate medical attention and special treatment needed
If breathing is difficult or patient show signs of lack of consciousness, seek immediate medical assistance.

5. Fire-Fighting-Measures

5.1 Extinguishing media:
W A T E R O N L Y
Burning nitrocellulose can **only** be extinguished by **large** quantities of **water**. **Not effective extinguishing media due to safety reasons:**
Carbon dioxide, foam, dry powder and sands.

Nitrocellulose contains oxygen so that these extinguishers are **not effective!**

5.2 Special hazards arising from the mixture:

Drum lids can be blown off. Under certain conditions burning nitrocellulose may produce toxic fumes. Fumes emitted may contain nitrous fumes in case there is not sufficient oxygen available for a complete combustion. After the fire is extinguished the material may be instable and could ignite by itself or emit toxic fumes. Therefore, ensure residual nitrocellulose is thoroughly wetted with water.

5.3 Advice for fire-fighters:

Firefighters must work from the windward side and should be equipped with self-contained breathing apparatus to be protected against potentially toxic and irritating fumes.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel

Wear suitable protective equipment/clothing. See 6.1.2.
Ensure sufficient ventilation or fresh air.
Avoid contact with eyes or skin.
Avoid inhalation of vapours.
Remove sources of ignition. No smoking!

6.1.2 For emergency responders.

Wear suitable protective equipment/clothing.

Hand protection:	*Wear solvent resistant gloves. Butyl rubber (≥ 0.5 mm) has been shown to be effective against heavy exposure to ethanol, with a breakthrough time in excess of 8 hours. The gloves must be anti static.*
Eye protection:	*Protective goggles and/or full face shield.*
Skin protection:	*Flame retardant, antistatic protective clothing and antistatic protective shoes.*

6.2 Environment Precautions:

Avoid a contamination of ground water, sewage works, earth or surrounding vegetation by spilled nitrocellulose.

6.3 Method and material for containment and cleaning up:

Spilled nitrocellulose must be thoroughly wetted with plenty of water, swept up carefully and kept in tightly closed watertight container. Use tools which do not produce sparks.

6.4 Reference to other sections:

For suitable protective clothing see section 8
For disposal considerations see section 13
For safe handling see section 7

7. Handling and Storage

7.1 Precautions for safe handling:

Do not smoke.
Do not drop, slide, roll or bang the drums.
Keep away from flame, heat, shock, impact, friction, sparks or static electricity.
Do not allow nitrocellulose to dry out, because nitrocellulose becomes more sensitive in dry state.
Keep package tightly closed when not in use.
Ensure adequate ventilation.
Pull antistatic polyethylene liner - if present - carefully down over the outside of the container.
Ensure package is completely earthed during emptying.
Do not remove the polyethylene line from the drum during emptying.
Tools used for manufacture of nitrocellulose should be of nonferrous materials such as copper, brass or wood.
Tools made of plastic material must not be used because of their tendency to produce static electricity.
Do not bang the drums while emptying (Danger of ignition).
Avoid contact with strong alkaline and acid materials, amines or oxidizing agents.
Keep quantity of product in the processing area to a minimum that is expected to be needed for one shift.
Do not allow nitrocellulose to enter drains or water courses.

7.2 Conditions for safe storage, including any incompatibilities:

Do not have unnecessary high amounts of nitrocellulose in the warehouse.
Store in cool, dry and adequately ventilated places in original containers.
As long lasting storing temperature a maximum of 40°C is recommended.
Keep away from heat, flame or any source of ignition. Do not smoke in storing areas.
Keep away from sunlight.
Nitrocellulose is not to be stored together with materials, e.g. alkalines, acid materials, amines or oxidizing agents.
Nitrocellulose is not allowed to be stored together with flammable liquids.
Rotate inventory on a "First in/First out" basis (the date of manufacture is indicated on the container label).
Do not open or empty containers within the storage area.
The storage should be in accordance with national and local environmental regulations.
After opening the container the remaining contents should be used as soon as possible.
Nitrocellulose should be used within two years of the date of manufacture. This applies to nitrocellulose stored in original, unopened packages (maximum storing temperature 40°C).

7.3 Specific end use(s)

No further information available.

8. Exposure controls and personal protection

8.1 Control Parameters:

Observe exposure limits that may exist by national legislation for damping agents.

EXPOSURE LIMITS:
In accordance with local regulations

ETHANOL					
Country	*Limit Value Eight Hours*		*Limit Value Short Term*		*Legal Basis*
	ppm	*mg/m³*	*ppm*	*mg/m³*	
Australia	*1000*	*1880*			*Workplace exposure standards for airborne contaminants*
Austria	*1000*	*1900*	*2000*	*3800*	*Grenzwerteverordnung*
Belgium	*1000*	*1907*			*Valeurs limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB*
Canada-Ontario			*1000*		*Not available*
Canada – Quebec	*1000*	*1880*			*Not available*
Denmark	*1000*	*1900*	*2000*	*3800*	*Not available*
Finland	*1000*	*1900*	*1300*	*2500*	*Not available*
France	*1000*	*1900*	*5000*	*9500*	*Limit Values France - VLE*
Germany	*500*	*960*	*1000*	*1920*	*Technical Rule for Hazardous Substances (TRGS) No. 900.*
Hungary		*1900*		*7600*	*Decree 25/2000 (IX.30) EüM-SzCsM.*
New Zealand	*1000*	*1880*			*Not available*
Poland		*1900*			*Maximum Admissible Concentration (MAC) and Maximum Admissible Intensity (MAI) values*
Singapore	*1000*	*1880*			*Not available*
Spain	*1000*	*1910*			*Royal Decree 374/2001 transposing Directive 98/24/EC*
Sweden	*500*	*1000*	*1000*	*1900*	*Not available*
Switzerland	*500*	*960*	*1000*	*1920*	*Verordnung über die Verhütung von Unfällen und Berufskrankheiten (VUV)", Art. 50 Abs.3.*
The Netherlands		*260*		*1900*	*Social and Economic Council of the Netherlands (SER)*

USA OSHA	*1000*	*1900*			*Occupational Safety & Health Administration (OSHA)*
UK	*1000*	*1920*			*EH40, Workplace exposure limits*

Derived No Effect Level (DNEL) for Ethanol:
Inhalation 960 mg/m³

Isopropanol					
Country	*Limit Value Eight Hours*		*Limit Value Short Term*		*Legal basis*
	ppm	*mg/m³*	*ppm*	*mg/m³*	
Australia	*400*	*983*	*500*	*1230*	*Workplace exposure standards for airborne contaminants*
Austria	*200*	*500*	*800*	*2000*	*Grenzwerteverordnung*
Belgium	*200*	*500*	*400*	*1000*	*Valeurs limites d'exposition professionnelle – VLEP/ Grenswaarden voor beroepsmatige blootstelling – GWBB*
Canada-Ontario	*200*		*400*		*Not available*
Canada – Quebec	*400*	*983*	*500*	*1230*	*Not available*
Denmark	*200*	*490*	*400*	*980*	*Not available*
Finland	*200*	*500*	*250*	*620*	*Not available*
France			*400*	*980*	*Limit Values France - VLE*
Germany	*200*	*500*	*400*	*1000*	*Technical Rule for Hazardous Substances (TRGS) No. 900.*
Hungary		*500*		*2000*	*Decree 25/2000 (IX.30) EüM-SzCsM.*
Japan	*400*				*Japanese Ministry of Health, Labour and Welfare in*
New Zealand	*400*	*983*	*500*	*1230*	*Not available*
Poland		*900*		*1200*	*Maximum Admissible Concentration (MAC) and Maximum Admissible Intensity (MAI) values*
Singapore	*400*	*983*	*500*	*1230*	*Not available*
Spain	*200*	*500*	*400*	*1000*	*Royal Decree 374/2001 transposing Directive 98/24/EC*
Sweden	*150*	*350*	*250*	*600*	*Not available*
Switzerland	*200*	*500*	*400*	*1000*	*Verordnung über die Verhütung von Unfällen und Berufskrankheiten (VUV)", Art. 50 Abs.3.*
The Netherlands					*Social and Economic Council of the Netherlands (SER)*
USA OSHA	*400*	*980*	*500*	*1225*	*Occupational Safety & Health Administration (OSHA)*
UK	*400*	*999*	*500*	*1250*	*EH40, Workplace exposure limits*

Derived No Effect Level (DNEL)Isopropanol
Inhalation 500 mg/m³

8.2 Exposure controls:

Concentration of solvent in the work area atmosphere should be monitored. Take care of good ventilation or use local exhaust to maintain ambient vapour concentrations below the exposure limits.

Personal Protection:

Below personal protection equipment for limitation of exposition in the work area is recommended:

Respiratory protection:

Ensure sufficient ventilation/suction in order to maintain the damping agent concentration below the exposure limits. In case an appropriate suction is impossible use appropriate breathing equipment, e. g. breathing filter protecting against organic vapours.

Eye / face protection:

Protective goggles with side protection or full face shield.

Hand protection:

Wear solvent resistant gloves. Regarding damping agents safety gloves made of butyl rubber (thickness>= 0,5 mm) have shown a breakdown period exceeding 8 hours. Gloves must be antistatic.

Other *skin protection*:

Flame-retarding antistatic protective clothing and antistatic protective shoes are recommended.

Thermal Hazards:

Not applicable

Environmental Exposure control:

Material should be used in closed equipment. Keep container tightly closed when not in use. *Do not allow to enter drains or water courses.*

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	fibrous solid in form of flocks or granules
Colour:	white
Odour:	typical (Ethanol)
Odour treshold	Not available
Evaporation rate	*8,3 (Ethanol)*
Flammability	*Highly flammable*
pH-value:	ca. 7 (10 % slurry in water)
Initial boiling point / boiling range:	solid, not meltable in undecomposed form
Bulk density:	250 - 600 kg/m³
Specific density	*1,6 g/cm³*
Vapour pressure of Ethanol (at 20°C):	58,1 mbar
Vapour density of Ethanol	2,07
Viscosity:	not applicable
Solubility in water:	NC is not soluble in water. Ethanol is completely miscible with water.
Solubility in organic solvents:	Nitrocellulose is soluble in esters, ketones and glycole ethers.
Partition coefficient n-octanol/water:	log pOW < 0 (Nitrocellulose)
Flash point of Ethanol:	12°C (Abel Pensky)
Explosion limits (of Ethanol):	lower limit: 3,5 % Vol. upper limit: 15,0 % Vol.
Melting point	Not applicable
Auto- ignition temperature:	Deflagration temperature of the NC cotton > 180°C
Decomposition temperature	See autoignition temperature
Explosive properties:	Explosion hazard when heated under confinement
Oxidising properties	*None*

9.2 Other information:

No further information available

10. Stability and reactivity

10.1 Reactivity:

If allowed to dry out, industrial nitrocellulose becomes significantly more sensitive to heat, friction and static electricity. When subject to heavy confinement, nitrocellulose can in case of ignition resp. decomposition exhibit explosive properties.

10.2 Chemical Stability:
Stable under recommended storage and handling conditions

10.3 Possibility of hazardous reactions:
Nitrocellulose decomposes when in contact with strong alkaline and acidic materials, amines or oxidising agents.

10.4 Conditions to avoid
Avoid heat, flames, sparks, shock and friction. Stability decreases and deterioration starts with increasing temperatures. Avoid evaporation of the damping agents. Observe recommended storage conditions.

10.5 Incompatible materials
Nitrocellulose decomposes in contact with alkalines, acids, amines or oxidizing agents.

10.6 Hazardous decomposition products
CO, CO_2, oxides of nitrogen and other potentially toxic fumes.

11. Toxicological Information

11.1 Information on toxicological effects

NC itself is not toxic. Toxicity of the product depends on the damping agent.

	Ethanol	*Isopropanol*	*Nitrocellulose*
Oral $LD_{50,Rat}$	*10470 mg/kg*	*5840 mg/kg*	*> 5000 mg/kg*
Inhalation LC50, Rat	*117-125 mg/l*	*>10000 mg/l*	-
Dermal Rabbit LD50	*20 ml/kg*	*16.4 ml/kg*	-
Eye Contact	*Cat II Causes serious eye irritation*	*Cat II Causes serious eye irritation*	*Not Irritating*
Skin Contact	*Not Irritating*	*Not Irritating*	*Not Irritating*
Germ cell mutagenicity	*No significant effect*	*No significant effect*	*No significant effect*
Carcinogenicity	*No significant effect*	*No significant effect*	*No significant effect*
Reproductive toxicity	*No significant effect*	*No significant effect*	*No significant effect*

12. Ecological Information

No indications known about nitrocellulose having detrimental effects on the environment.

12.1 Toxicity:

Test parameters:	Fish toxicity LC50	Daphnia toxicity EC 50	Alga toxicity EC/LC50	Bacteria toxicity EC50	Water hazardous class
Nitrocellulose:	Brachydanio rerio: >5.000 mg/l (96 h), OECD 203	Daphnia magna: >10.000 mg/l (48h), OECD 202	>10.000 mg/l (78 h), OECD 201	>10.000 mg/l (OECD 209)	not water hazardous
Ethanol:	13.000 mg/l (96 h)	12.340 mg/l (24 h)	275 mg/l (72 h)	6.500 mg/l	1
2-Propanol	*>9.000 mg/l (96 h)*	*>9.000 mg/l (24 h)*	*>1.000 mg/l (72 h)*	*1.050 mg/l*	*1*

12.2 Persistence and degradability:
Nitrocellulose: degradation: ca. 20 % after 28 days; OECD 301 B
Damping alcohols: the damping alcohols are easily biologically degradable (> 90 %).

12.3 Bioaccumulative potential:
Nitrocellulose: log pOW < 0 - no potential of bioaccumulation
Ethanol: log pOW – 0,32 - low potential of bioaccumulation
2-Propanol: log pOW 0,05 - low potential of bioaccumulation

12.4 Mobility in soil:
Nitrocellulose is insoluble in water and will not be mobile in soil. Damping agent is miscible with water and is expected to be mobile in soil.

12.5 Results of PBT and vPvB assessment
Not applicable

12.6 Other adverse effects
No further information available

13. Disposal considerations

13.1 Waste treatment methods:
Recommendation is given to dissolve smaller quantities of nitrocellulose prior to destruction as waste NC-laquer. *(European Waste Catalogue EWC 08 01 11).*For larger quantities contact manufacturer. *Sewage disposal shall be discouraged. Do not allow into drains or water courses.*
An empty container may retain dangerous residues. Observe safety instructions mentioned on the label. Keep away from heat, sparks and flames. Do not weld or use cutting torch on or near container.
Transfer the package to a non-hazardous area and remove interior PE liner and dispose of as dangerous waste. Remove or garble labels. Then containers can be disposed of as non dangerous waste.
Waste disposal must be in accordance with local environmental regulations.

14. Transport information

14.1 UN Number	ADR, IMDG, IATA	2556
14.2 UN proper shipping name		
ADR		UN 2556 Nitrocellulose with alcohol
IMDG, IATA		Nitrocellulose with alcohol
14.3 Transport hazard class	ADR, IMDG, IATA	4.1
14.4 Packing group	ADR, IMDG, IATA	II
14.5 Environmental Hazards	Marine pollutant	No
14.6 Special precaution for user		
ADR (additional information)	*Tunnel Restriction*	*Code B*
IMDG (additional information)	*Emergency Schedule Number*	*F-B, S-J*
	Stowage	*Category D*
	Segregation	*Away from class 3 and heavy metals and their salts.*

14.7 Transport in bulk according to Annex II of MMARPOL73/78 and the IBC Code
Not *permitted*

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations (Germany):
- Storage: Damped nitrocellulose is subject to the German law pertaining to potentially explosive materials (Sprengstoffgesetz). It is classified as "an otherwise explosive material" on list II, substance class C, part 3, general composition 1.
- Leaflet of German "BG-Chemie": M 037 12/93
- Wassergefährdungsklasse 1

NATIONAL INVENTORIES
Complies with the following national/regional chemical inventory requirements:

AICS Australian Inventory of Chemical Substances,
DSL Domestic Substance list (Canada)
ENCS Existing and New Chemical Substances (Japanese Inventory)
IECSC Inventory of Existing Chemical Substances in China,
KECI, Korean Existing Chemicals Inventory
PICCS Philippine Inventory of Chemicals and Chemical Substances
TSCA. Toxic Substances Control Act (USA Inventory)

15.2 Chemical Safety assessment
A Chemical Safety Assessment hasn't been carried out for the mixture by the supplier.

16. Other information

This data sheet was prepared in June 2015. Revisions are printed in italic script.

This Data Sheet was prepared in accordance with the REACH Regulation (EC) No 1907/2006 as amended by Commission Regulation (EU) No 453/2010.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008(CLP):
On basis of test data

Key Literature references and sources for data
Suppliers safety data sheet
ECHA – Database of REACH registered substances
GESTIS – Database of International limit values for chemical agents (Occupational exposure limits, OELs)

The technical information provided in this safety data sheet should only be used for the purposes of assessing hazards with respect to safety or the environment. It should not be used as a technical specification or for engineering calculations.

Information in this document is believed to be accurate and is given in good faith but it is for the customer to satisfy itself of the suitability for its own particular purpose. The information provided is intended to describe the product for the purposes of health, safety and environmental requirements only. It is not intended, and should be construed as a warranty.

This Safety Data Sheet is applicable for all ester soluble H-types, alcohol soluble AH types and medium alcohol soluble H Special types being damped with ethanol.