

Material Safety Data Sheet

Li-ion Battery Separator Film

Reviewed on: June 2010

1. PRODUCT MANUFACTURER / IDENTIFICATION

Product identification:

Trilayer polypropylene-polyethylene-polypropylene membrane

Recommended use:

Separator for primary lithium ion batteries

Manufacturer:

Celgard

2. COMPOSITION

Chemical characterisation:

polypropylene-polyethylene-polypropylene

Form: film

Odour: none

Colour: white

The product does not contain any hazardous substances.

3. HAZARDS IDENTIFICATION

No specific danger is associated to the normal industrial utilisation of the product. However, it is to be considered that plastic film left of the ground of working areas are slippery, and that during converting of film rolls electrostatic discharges can be generated.

4. FIRST-AID MEASURES

Inhalation/ingestion:

Considering the physical form of the product, inhalation and/or ingestion are not likely to be possible during normal use. For inhalation of fumes, see Sect 5.

Skin Contact:

In case of skin injuries due to melting material, seek medical assistance.

5. FIRE-FIGHTING MEASURES

Polyethylene film is not a flammable material, but it will burn if exposed to flames, giving off harmful fumes that should not be inhaled. Molten droplets of polymer can be produced, which could ignite adjacent flammable and/or combustible materials.

Self-ignition temperature:

> 400 °C

Combustion products:

By direct ignition the product burns with flames, developing H₂O, CO₂ and, in case of oxygen defect, also CO. The fire products are irritant and toxic.

Decomposition products:

In the growth stages of fires (particularly between 400 and 700 °C) other products as hydrocarbons and aldehydes

(acetaldehyde, crotonaldehyde) may be formed.

Recommended extinguishing media:

water, foam

First aid:

IN CASE OF THE INHALATION OF FUMES, THE AFFECTED PERSON SHOULD BE REMOVED TO FRESH AIR AS SOON AS POSSIBLE, KEPT W ARM AND ARTIFICIAL RESPIRATION APPLIED AS NECESSARY. MEDICAL ATTENTION SHOULD BE OBTAINED IMMEDIATELY.

Skin or clothing contaminated by molten polymer should be drenched with clean cold water until cool. In case of skin contact by molten material, the patient should be referred for immediate medical attention and under no circumstances should any attempt be made to peel the solidified polymer off the skin.

Hazchem code:

Not available

6. ACCIDENTAL RELEASE MEASURES

Collect the film in order to avoid possible slipping of personnel on the floor.

7. HANDLING AND STORAGE

The product does not present special safety requirements during handling and storage; however, in order to maintain their properties and to ensure a good processability, the film should be stored avoiding high humidity and extreme temperature conditions. It is especially recommended to avoid any moisture condensation. Do not exceed an ambient temperature of 40 °C and a relative humidity of 80%; protect the film rolls from sunlight direct exposure and do not place them nearby ovens, steam lines or other heat sources. It is also a good practice to remove the film from the store and transport it nearby the converting equipment at least 24 hrs before its use. Unwinding, winding and passage of the film through nips and cover rollers will tend to generate a strong electrostatic charge of the web. Static discharge devices should be properly positioned as such points to eliminate the charge and to prevent uncontrolled discharge from the web. This is particularly required in hazardous atmospheres and to protect personnel handling the film.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

DURING NORMAL HANDLING PROTECTIVE GLOVES AND THE USUAL PROTECTIVE EQUIPMENT ARE RECOMMENDED.

If there is any possibility of contacting molten film (e.g.: nearby the sealing bars or the heated rollers of packaging machines), heat protective gloves are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Relevant safety data

Change in physical state:

Softening point:	ca. 165	°C	Tested in accordance with:
Density: (20 °C)	ca. 0,30 – 0,45	g/cm ³	DIN 53479
Bulk density:		kg/m ³	
Vapour pressure: (°C)	n.a.	mbar	
Viscosity: (°C)	n.a.		
Solubility in water: (°C)	insoluble	g/l	
pH-value: (at g/H ₂ O)	n.a.	g/l	

n.a. = not applicable

10. STABILITY AND REACTIVITY

The product is stable at normal handling and storage conditions.

Hazardous decomposition products: not known

Hazardous reactions: none

11. TOXICOLOGICAL INFORMATION

Not toxic.

12. ECOLOGICAL INFORMATION

When disposed of under orderly conditions no environmental damage effects occur. When burning under free air conditions only CO₂, CO and water arise. Does not contain additives based on heavy metals like cadmium (Cd), lead (Pb), mercury (Hg) or chromium^{VI} (Cr^{VI}).

13. DISPOSAL CONSIDERATIONS

Can be recycled or may be disposed of or incinerated in accordance with local official regulations.

14. TRANSPORT INFORMATION

Transport	GGVSee/IMDG-Code:	UN-Nr:	ICAO/IATA-DGR:
	GGVE/GGVS:	RID/ADR:	ADNR:

Other information:

Not classified as dangerous goods.

15. REGULATORY INFORMATION

N/A.

16. OTHER INFORMATION

Statements are made due to latest state of our knowledge. They shall describe our product with regard to safety requirements, thus do not mean a guarantee for certain characteristics.