

Material Safety Data Sheet

TERVAKOSKI FILM ECU

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name **TERVAKOSKI FILM ECU**

BOEPN-film manufactured by tenter process with super clean electrical grade ultra high temperature resin. Tervakoski film ECU is a low shrinkage film with controlled smooth surface on both sides and corona treatment on one side.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Base film for metallization with Aluminum, Zinc or Alloy for DC / AC capacitor applications with targeted Ultra High Temperatures condition.

Designed to fit for SiC (wide bandgap) semiconductor technologies and also benefit with existing Si semiconductor technologies.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Distributor: Terichem Tervakoski. a.s.
Štúrova 101
059 21 Svit
Slovak Republic

Telephone number: +421 52 715 3195

Fax number: +421 52 715 3520

e-mail : info@sk.tervakoskifilm.com

1.4 Emergency telephone number

Terichem Tervakoski, a.s., Štúrová 101, 059 21 Svit, Slovak Republic

Company dispatching 2(24 hours): Tel. +421 52 715 2441

Emergency Information Services / Official Advisory Body

National Toxicological Center (NTIC), Limbova 2645/5, 831 01 Bratislava, phone: +421 2 5477 4166
(24-hour consultation service for acute intoxications)

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

No specific danger is associated to the normal industrial utilization of the product. Product is not classified as dangerous, according to regulation (EC) no. 1272/2008 (see section 15).

Classification / symbol: Not regulated

2.2 Label elements

Hazard classification:

Symbol of danger:

H – phrases: not applicable

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P 210 - Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P 232 - Protect from moisture.

P 402 - Store in a dry place.

P 410 - Protect from sunlight.

P 411 - Store at temperatures not exceeding 40 °C.

2.3 Other hazard

Physical and chemical hazards / Fire and explosion hazards: combustible – product can burn when is ignited. During a fire the product will melt and may generate drops that could propagate the fire.

Toxic gases will form upon combustion (see Section 5 „Fire-fighting measures“).

Flammable / toxic gases will form upon decomposition (see Section 10 „Stability and reactivity“).

Product can accumulate electrostatic charges when rubbed or chafed. Static discharge in the presence of volatile or flammable mixtures presents a potential fire or explosion hazard.

Environmental hazards: This substance and (or) its components are expected to remain in the water and soil surface and persist. Based on the available data of this product no hazardous properties are known.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Polypropylene

3.2 Mixtures

Does not contain other added components.

4. FIRST - AID MEASURES

4.1 Description of 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. First aid is not normally required.

Skin contact: First aid is not normally required. In case of skin injured due to melting material immediately rinse affected area with plenty of cold running water than cover with clean cotton sheet or gauze and seek medical assistance promptly.

Eye contact: First aid is not normally required.

4.2 Most important symptoms and effects, both acute and delayed

Not known.

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4.3 Indication of any immediate medical attention and special treatment needed

Not known.

5. FIREFIGHTING MEASURES

Polypropylene 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.

Autoignition temperature: > 320 °C

5.1 Extinguishing media

For extinguishing use water, foam or dry chemical extinguisher.

5.2 Special hazards arising from the substance or mixture

By direct ignition the product burns with flames, developing H₂O, CO₂ and in case of absence of oxygen can be produced Carbon Monoxide (CO). The fire products are irritant and toxic. At a temperature of combustion between 400 - 700 °C can generate other fire products and these are Hydrocarbons and Aldehydes.

In case of the inhalation of fumes, the affected person should be taken to fresh air as soon as possible, kept warm and artificial respiration applied if necessary. Seek medical assistance promptly.

5.3 Advice for firefighters

Respiratory and eye protection required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

The film located on the floor can cause slipping and subsequent fall of personnel.

6.2 Environmental precautions

The product in normal condition does not cause danger for the environment and does not contain additives of heavy metals (cadmium – Cd, lead – Pb, mercury – Hg and chromium – Cr^{VI}).

6.3 Methods and material for containment and cleaning up

Standard cleaning procedures

6.4 Reference to other sections

They are not.

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7. HANDLING AND STORAGE

7.1 Precautions for safe handling

The product does not require special safety requirements during handling and storage.

7.2 Conditions for safe storage, including any incompatibilities

In order to maintain film properties and to ensure a good processability. The film is wound up to a roll. The rolls should be stored in the original package and in dry place. Temperature exceeding 40°C should be avoided during storage. It is recommended that film is used one year of receipt. A longer storing time increases the risk of metallization problems. The product should be kept away from direct sunlight and heat sources (steam lines or other). Do not store near open flame, sources of heat. Keep away from hazardous chemicals.

7.3 Specific end use (s)

Do not process near an open flame, sources of the heat, flammable/explosive environment.

Take preventive against electrostatic discharges - the film can accumulate electrostatic charge what could cause an electrical spark (ignition source).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Does not contain ingredients prescribed with a maximum exposure limits according Commission directive 2006/15/ES of 7. february 2006

8.2 Exposure controls

During normal handling are recommended the usual protective equipment.

skin - working clothes

feet - working boots resistant to slip

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

These are indicative values only. It must not be regarded as a specification of product.

Apperance:		solid (plastic film)
Form / color:		transparent
Odour:		none
pH – value:		n.a.
Melting / solidification point	(°C)	130 - 170
Boiling point	(°C)	n.a.

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Flash point	(°C)	> 320
Speed of evaporation		n.a.
Ignitability		ignitable
Upper / lower explosive limits		n.a.
Vapor pressure		n.a.
Vapor density		n.a.
Relativ density (g.cm ⁻³) (20 °C)		900 – 1000
Solubility in water (20 °C)		insoluble
Distributive coefficient n-octanol / water		n.a.
Decomposition temperature	(°C)	> 400
Viscosity:		n.a.
Explosive properties		n.a.
Oxidizing properties		n.a.
Oxygen-index LOI	(%)	(17-19)

n.a. = non applicable

9.2 Other information

Not known.

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not known.

10.2 Chemical stability

The product is stable in compliance with safety and storage conditions, see section 7.2

10.3 Possibility of hazardous reactions

Reaction with materials, see section 10.5

10.4 Conditions to avoid

Avoid high temperatures above 300 °C, strong oxidizing agents and static electricity.

10.5 Incompatible materials

Chlorine, fluorine and other oxidizing agents.

10.6 Hazardous decomposition products

During burning arise Carbon Dioxide (CO₂), Carbon Monoxide (CO), Flammable Hydrocarbons and Fumes.

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11. TOXICOLOGICAL INFORMATION

Non toxic, and according the current expertise is not classified as dangerous product for humans and has not adverse effect on human health. It does not have provable sensible CMR effects.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Not known.

12.2 Persistence and degradability

The product has not harmful effects on the environment. For environment is a foreign substance with very slow decomposition. It is decomposed under the influence of UV radiation. It is insoluble in water.

12.3 Bioaccumulative potential

Not known.

12.4 Mobility in soil

Not known.

12.5 Results of PBT and vPvB assessment

Not known.

12.6 Other adverse effects

Not known.

13. DISPOSAL CONSIDERATION

13.1 Waste treatment methods

The waste codes of the components of this product are: 07 02 13

The user must be aware that the conditions of use may affect the waste classification after use. Empty packaging should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor.

15 01 01 paper

15 01 02 plast

15 01 03 wood

Care should in any case be taken to ensure compliance with EC, national and local regulations.

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14. TRANSPORT INFORMATION

		ADR / RID	IMDG	AND / ADNR	ICAO-TI a IATA-DGR
14.1	UN number	This product is not classified according (ARD/RID, IMDG, ICAO-TI/ATA-DGR) regulations as dangerous.			
14.2	UN proper shipping name				
14.3	Transport hazard class (es)				
14.4	Packing group				
14.5	Environmental hazards				
14.6	Special precautions for user				
14.7	Transport in bulk according to Annex II. of MARPOL 73/78 and the IBC Code				

15. REGULATORY INFORMATION

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

- Regulation of the European Parliament and of the Council (EC) No 1907/2006 (REACH)
- Commission Regulation (EU) No 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the (REACH)
- Regulation of the European Parliament and of the Council (EC) No 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
- European Parliament and Council directive 94/62/EC of 20 December 1994 on packing and packing waste
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
- Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste
- The law of the National Council Slovak Republic No 364/2004 on Waters (Water law)
- The law of the National Council Slovak Republic No 17/1992 on the Environment protection
- The law of the National Council Slovak Republic No 478/2002 on the Air protection
- The law of the National Council Slovak Republic No 67/2010 on the Conditions for placing chemical substances and mixtures on the market (Chemical law)

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15.2 Chemical safety assessment

Not known.

16. OTHER INFORMATION' EN

Recommendations regarding training

It is recommended to provide minimum occupational hazard training to employees who will handle this product, in order to facilitate the understanding and interpretation of this safety data register as well as the data on the product labels.

Main literature

<http://echa.europa.eu>
<http://eur-lex.europa.eu>

Legend to abbreviations and acronyms used in the safety data sheet

AC - alternating current
DC - direct current
HEV - hybro electric vehicle
EV - electric vehicle
CMR - carcinogenicity, mutagenicity, reproductive toxicity
EU - European Union
PBT - persistent, bioaccumulative and toxic
vPvB - very persistent and very bioaccumulative
ADR - European agreement on the international transport of dangerous goods by road
RID - agreement on the transport of dangerous goods by rail
IMDG - international maritime transport of dangerous goods
ADN - European agreement on the international inland water carriage of dangerous goods
ICAO - international organization for civil aviation
IATA - international air carriers association
DGR - dangerous goods
REACH - registration, assessment, authorization and restriction of chemical substances
MARPOL - European Union international convention for the prevention of pollution from ships
ECHA - European Chemicals Agency

We took maximal care to ensure that information in this document relating to the health, safety and the environment were accurate at the date of issue. This information correspond to the current state of knowledge and experience and do not guarantee specific properties of product. Data and information are valid if the product is used for the purpose for which it was sold. The user is required to use this product safely and to comply with all applicable laws and regulations. User is responsible for ensuring that by use of the product will respect safety precautions. Vendor assumes no responsibility for damage or injury, if the product will be use for other purposes than approved.

This document is not made for the purpose of quality certificate.