

CERTIFICATE

Recyclability of Packaging Material

KRAIBURG TPE GmbH & Co. KG
Friedrich-Schmidt-Straße 2
84478 Waldkraiburg | Germany

The company receives the certification of recyclability for the following group of packaging materials.

Designation

TPS (Styrenic Block Copolymer)
as thermoplastic elastomer component in PP-based packaging applications
Different TPS grades with density < 0.95 g/cm³, listed on page 2 of this certificate

Test result

Assessment via path:	Path 3: Polypropylene
Recyclate (final product):	PP Regranulate

Test standard / scope of application:

- Requirements and assessment catalogue of the cyclos-HTP Institute** for EU-wide certification (state 14/09/2021) / Scope of validity according to nation states, see chapter 1

Within the certification process, conformity with the following standards was also checked:

- Minimum standard for measuring the recycling capacity** of the ZSVR (state 31/08/2022); also integrated
- DIN EN 13430** with regard to material recyclability in the post-use phase; also integrated

The following reference processes, materials and applications are taken into consideration within the certification process:

- Recyclate use for injection moulding applications
- Test program based on CHI test protocol **CHI-C8-POR-1** with the use of PCR-based PP recyclate as reference

According to the CHI standard the corresponding materials (listed on page 2 of this certificate) are no contaminants in the tested application and can be considered as:

Compatible for PP Recycling

The share of the designated materials in the total packaging is fully accounted in the recyclate yield.

This certificate (No. 2434-2022-002819-W1) is valid until **31/03/2024** (1 year upon issue), and will lose validity in case of qualitative or quantitative changes of material compositions.

Aachen, dated 01/03/2023 (rev 10/03/2023)



Dr. Roland Bothor
Publicly appointed and sworn expert for the IHK for packaging waste disposal

Competent authority: IHK Aachen
The detailed results are documented in the corresponding test report (No. 2434-2022-002819).

CHI | cyclos-HTP Institute

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ANNEX

to Certificate No. 2434-2022-002819

This certificate is only valid for the groups of TPS grades by Kraiburg TPE, listed in the following table:

<i>Grade name</i>	<i>Related material codes</i>
RC#OGG-a_x	# = 4-9
TF#AA%-a_x	# = 4-9; % = single capital letter (A – H)
TF#ATL-a_x	# = 3-9
TF#CGT-a_x	# = 3-9
TF#CMA-a_x	# = 5-8
TF#FHT-a_x	# = 3-8
TF#OGL-a_x	# = 3-9
TF#OQD-a_x	# = 3-9
TF#PAO-a_x	# = 4-9
TF#STE-a_x	# = 3-8
TF#SVA-a_x	# = 3-4
TF#SVF-a_x	# = 3-4
TF#THT-a_x	# = 3-8
TM#LFT-a_x	# = 3-9
TM#MED-a_x	# = 3-9
TM#MEP-a_x	# = 3-9

<i>Grade name</i>
HTC9480/125_x
HTC9480/126_x
HTC9480/133_x
HTC9480/134_x
HTC9480/135_x
HTC9480/141_x
HTC9480/144_x
HTF2147/129_x
HTF2147/95_x
HTF6040/80_x
HTF8500/93_x
HTF8787/95_x
HTF8787/96_x
HTF9471/80_x
HTF9483/91_x
HTF9486/16_x
HTF9487/02_x
HTF9488/428_x
HTF9488/459_x
HTM8510/390_x
HTM8510/445_x
TF0VIC-a_x
TF7GST-a_x
TF8CMB-a_x
TF9ABA-a_x
TM4RST-a_x

-a = either no suffix or "-" followed by 3-4 digits alphanumeric code to define the material colour or minor modifications.

x = 4-5 digit alphanumeric code to define the packaging unit (always present). The underscore before the placeholder "x" is integral to the compound designation.

= hardness indicator; 1 digit number, limits are given in each line where relevant.

For additional compounds that fulfil criteria of the underlying study, KRAIBURG TPE is entitled to use this certificate as well. However, on request reconfirmation is required by cyclos-HTP Institute.

Document history

2434-2022-002819 Certificate Kraiburg TPE – TPS in PP packaging (date: 14/03/2022)

- Original certificate document with test report No. 2434-2022-002819
- Certificate limited to countries with existence of a relevant recycling infrastructure for rigid PP packaging

2434-2022-002819-W1 Certificate Kraiburg TPE – TPS in PP packaging (date: 01/03/2023)

- Re-certification for one further year
 - Expansion of the packaging material group with TPS grades “HTF6040/80_x”, “HTF9488/428_x”, “HTM8510/390_x”, “HTM8510/445_x”
 - Change of material code “TF#AA%-a_x” to # = 4-9
 - No more countries listed
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