

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:

- Requirements and assessment catalogue of the cyclos-HTP Institute** for EU-wide certification

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

- Minimum standard for measuring the recycling capacity** of the ZSVR (state 31/08/2023); 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 molding applications.
- Test program based on CHI test protocol **CHI-C8-POR-1** with the use of PCR-based PP recyclate as reference.

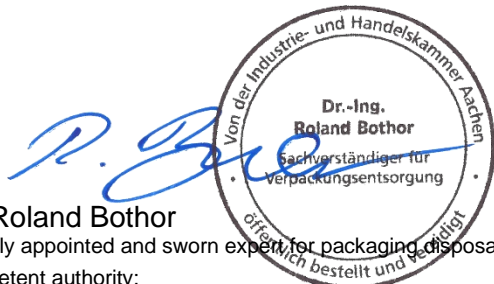
According to the CHI standard the corresponding materials (listed on page 2 of this certificate) are no contaminants in the tested application and can be considered as:

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-W2) is valid until **31/03/2025** (1 year upon issue) and will lose validity in case of qualitative or quantitative changes of material compositions.

Aachen, dated 05/03/2024



Dr. Roland Bothor
Publicly appointed and sworn expert for packaging disposal
Competent authority:
Chamber of Industry and Commerce, Aachen
The detailed results are documented in the corresponding test report (No. 2434-2022-002819) and annex.

CHI | cyclos-HTP Institute

Institut cyclos-HTP GmbH
Maria-Theresia-Allee 35 - 52064 Aachen
phone: +49 (0) 241 / 949 00 - 0
fax: +49 (0) 241 / 949 00 - 49



ANNEX

to Certificate No. 2434-2022-002819-W2

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

<i>Grade name</i>	<i>Related material codes</i>
RC#OGD-a_x	# = 3-9
RC#OGG-a_x	# = 4-9
TC6CHT-a_x	
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#CMB-a_x	# = 8-0
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>	
HRB9000/131	HTF6040/80_x
HRB9000/132	HTF8500/93_x
HRB9000/133	HTF8787/95_x
HRB9000/160	HTF8787/96_x
HRB9000/161	HTF9471/80_x
HRB9000/162	HTF9483/91_x
HTC9480/125_x	HTF9486/16_x
HTC9480/126_x	HTF9487/02_x
HTC9480/133_x	HTF9488/428_x
HTC9480/134_x	HTF9488/459_x
HTC9480/135_x	HTM8510/390_x
HTC9480/141_x	HTM8510/445_x
HTC9480/144_x	TF0VIC-a_x
HTF2147/129_x	TF7GST-a_x
HTF2147/95_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 Institute cyclos-HTP.

Document History

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

- Original certificate document with test report No. 2434-2022-002818
- Certificate limited to countries with existence of a relevant recycling infrastructure for rigid HDPE 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.

2434-2022-002819-W2 Certificate Kraiburg TPE – TPS in PP packaging (date: 05/03/2024)

- Re-certification for one further year.
 - Expansion of the packaging material group with TPS grades “RC#OGD-a_x” (# = 3-9), “TC6CHT-a_x”, “TF#CMB-a_x” (# = 8-0), “HRB9000/131”, “HRB9000/132”, “HRB9000/133”, “HRB9000/160”, “HRB9000/161”, “HRB9000/162”.
 - The grade TF8CMB is now integrated in “TF#CMB-a_x” (# = 8-0).
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