



<p><i>Guidelines on waste identification, treatment and preparation for recycling</i></p>		Type: Coordination <input type="checkbox"/> Administrative <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Communication <input type="checkbox"/> Steering Committee <input type="checkbox"/> Other: <input type="checkbox"/>	Ref. WP2.10, D.2.3.1 Date: 29.08.2024
		Document details	
Project	RECREATE: Improving the circular economy model for collection and processing of fibre-reinforced composites, containing waste		
Work package	2		
Deliverable	D.2.3.1		
Dissemination level	Sensitive		
Dissemination target	FLC		
Authors	Franco Mioni (GEES) Tiziana Perin (POLO AA)		
Due delivery	Period 1		
Version	Final		

PREPARED BY	Gees Recycling S.r.l	
SC document <input type="checkbox"/>	Confidential document <input checked="" type="checkbox"/>	Public document <input type="checkbox"/>

GEES RECYCLING: COMPANY AUTHORIZATION STATUS



Gees Recycling S.r.l. deals with non-hazardous waste recovery activities pursuant to the simplified procedures for the recovery of waste referred to in art. 214 and 216 of Legislative Decree 152/2006 and s.m.i and in compliance with the specific technical rules contained in the Ministerial Decree 5 February 1998 and s.m.i.

- The company operates authorized with AUA, ex D.P.R. 59/2013 that, regarding the waste recovery activity, transposes the communication ex. artt. 214-216, D.L.vo 152/2006:
- Regional Decree FVG no. 1163/AMB of 03/04/2017 (prot. ARPA 4606/2020)
- Regional Decree FVG n. 3162/AMB del 31/08/2018 (substantial modification) (prot. ARPA 33125/2018)
- Regional Decree FVG n. 3469/AMB of 27/08/2019 (simplified substantial modification) (prot. ARPA 29084/2019)
- Regional Decree FVG n. 717/AMB del 31/01/2020 (non substantial amendment) (prot. ARPA 4606/2020)

GEES RECYCLING: The company operates in the field of recycling of plastic materials, non-hazardous special waste, mainly from two families:

- Fibre-reinforced composites (fibreglass-kevlar-fibre carbon, etc.)
- Expanded thermosets (PUR/PIR regrind polyurethane, PET, PVC and fiberglass).

They are authorised to manage the following CER codes (European Waste Code):

Typology 6.1. Plastic waste; used plastic packaging including liquid containers, excluding containers for plant protection products and surgical devices.

- 02.01.04 plastic waste (excluding packaging)
- 15.01.02 plastic packaging
- 17.02.03 plastic
- 19.12.04 plastic and rubber
- 20.01.39 plastic

Typology 6.2. Waste, waste, dust and waste of plastics and synthetic fibres.

- 07.02.13 plastic waste
- 12.01.05 filings and shavings of plastics
- 16.01.19 plastics
- 16.02.16 components removed from end-of-life equipment, other than those mentioned in 16 02 15
- 16.03.06 organic wastes other than those mentioned in 16 03 05
- 17.02.03 plastics

GOOD WASTE MANAGEMENT PRACTICES

Special non-hazardous waste by definition does not contain harmful substances such as infected substances, toxic, sensitising, mutagenic or corrosive substances. Some types of waste classified as hazardous may be subject to treatment that reduces or eliminates the hazard before being placed in a recovery plant.

To this end, the producer's commitment to waste management in the following phases is essential:

- Production of waste: Trained operators must be trained on the management of the different types of waste and properly separate the waste.
- Storage: During the temporary storage phase of waste, operators must verify the integrity of containers intended for the storage of waste, in order to preserve it from interpersonal and any secondary contamination. It is extremely important that the containers clearly indicate the nature of the waste, that the containers for hazardous waste must clearly and immediately indicate the danger.
- Transport: Always check that the means used to transport the waste does not contain dangerous substances that may alter its nature. Always check the integrity of the packages at the time of loading.

WASTE CLASSIFICATION

In order to be able to accept the waste in the Gees Recycling plant, chemical analyses with the CER code (which must be present among those indicated above) must be available no earlier than 24 months from the date of submission.

For the allocation of waste ERC codes it is recommended to refer to the Waste Classification Guidelines - LG SNPA 24-2020, drawn up by the National System for Environmental Protection and Research and updated by Resolution of the Council SNPA No. 105/2021 of 18/05/2021, approved and made binding by Decree of the Ministry of Ecological Transition n 47 of 9 August 2021.

It will be agreed beforehand format of the waste to be given and, if relevant, the coloring.

Reference: https://www.mase.gov.it/sites/default/files/archivio/normativa/rifiuti/2021-08-09_decr_47.pdf

Guidelines on waste identification, treatment and preparation for recycling



Collect



Refine



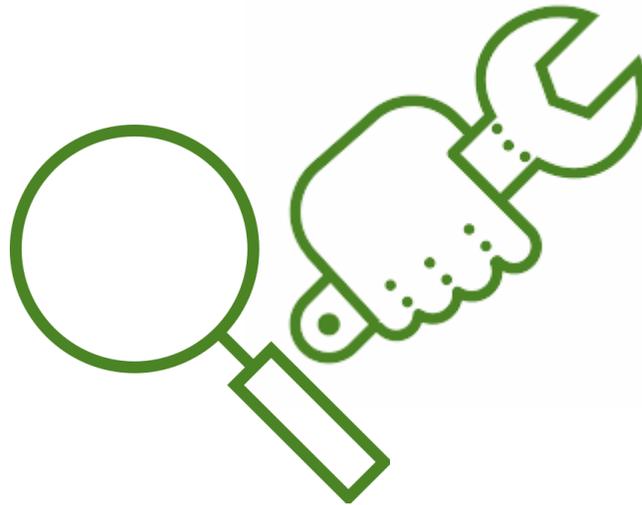
Transport

from GRP waste to furniture for public spaces

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Identification and preparation of synthetic fiber reinforced thermosetting resin composites



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Special care should be taken that there are no elements in the waste that could damage the recovery plant such as:
The iron that could damage the mechanical grinding line (shredder blades, mill blades).



Thermoplastics that would damage the molding line.

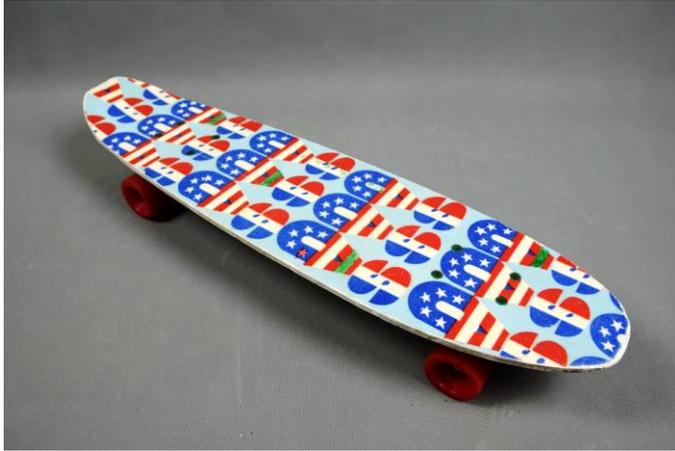


Organic substances that would control the whole plant.



Type and selection of materials

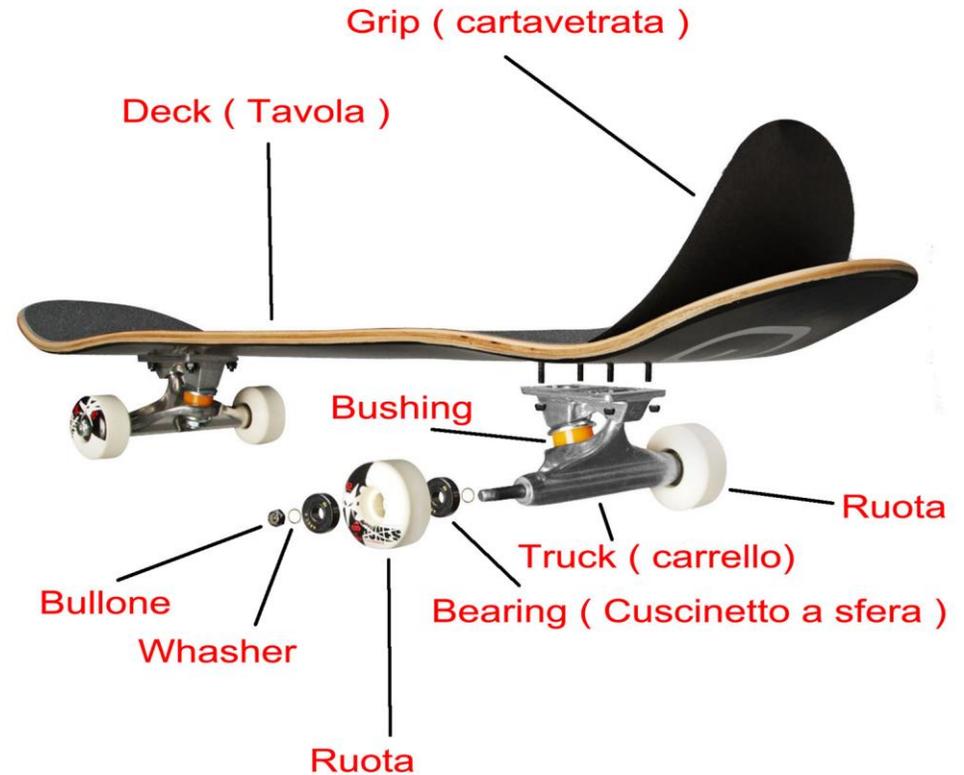
Fiberglass skateboard



Carbon fiber skateboard



Refine



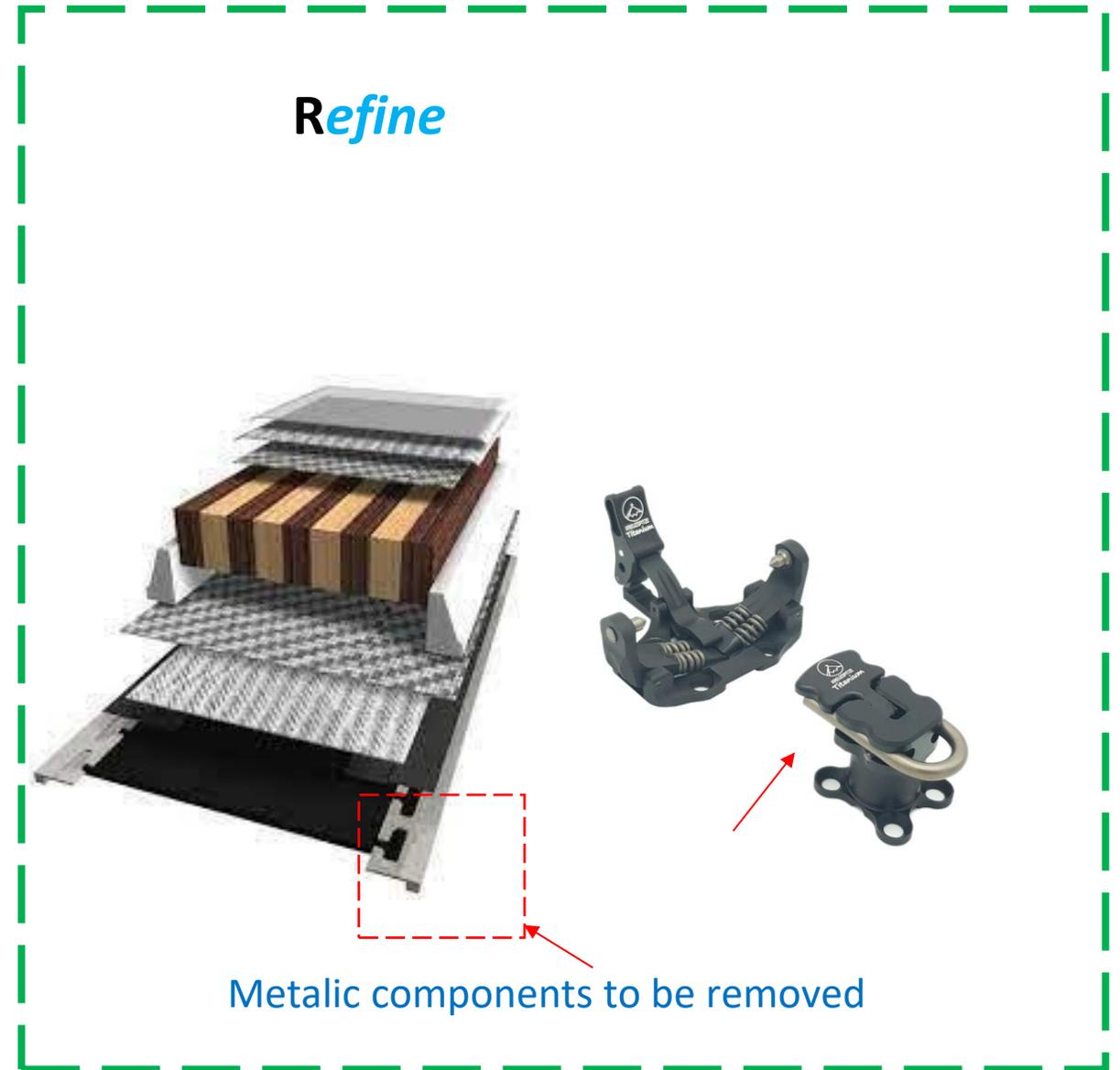
Components to be removed

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Type and selection of materials

Composit skis and snowboard



Type and selection of materials

Composit helmet



Type and selection of materials

rbikes



Refine



Closures and handles to be removed

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Type and selection of materials



Composite cycling
helmets



Type and selection of materials

Fiberglass tables and chairs



Refine

red (cushions and glass)



Components to be removed (metal
components, adjustable feet)



Type and selection of materials

Fiberglass pot cover



Refine



Components to be removed (any organic material and metal fixings)

Type and selection of materials

Three-dimensional models and fiberglass games



Refine



Components to be removed (any metal fixings, concrete or ballasted bases, springs)

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Type and selection of materials

Fiberglass slide



Refine



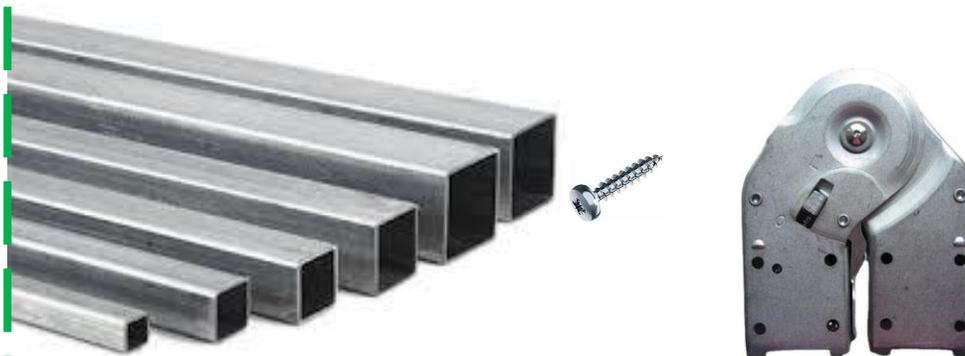
Components to be removed (any organic materials, metal fixings, metal ladder)

Type and selection of materials

Fiberglass stairs



Refine



Components to be removed (any metal fixings and pole)

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Type and selection of materials

fiberglass Folding ramp



Refine



Components to be removed (metal components and adjustable feet)

Type and selection of materials

fiberglass canoe or surfboard in reinforced resin foam



Refine



Components to be removed (any organic material and metal fixings)

Type and selection of materials

Composite tennis racket



Refine

attention: some old tennis rackets are made of metal and therefore not recyclable in the RECREATE project



Type and selection of materials

Composite bicycle frame



Refine



Components to be removed (seat, handlebars, brakes, wheels, gearbox, pedals, cables)

Type and selection of materials

composite fishing rod



Refine



Components to be removed (reel, metal rings, metal sections in general)

Type and selection of materials

Fiberglass sinks and shower trays

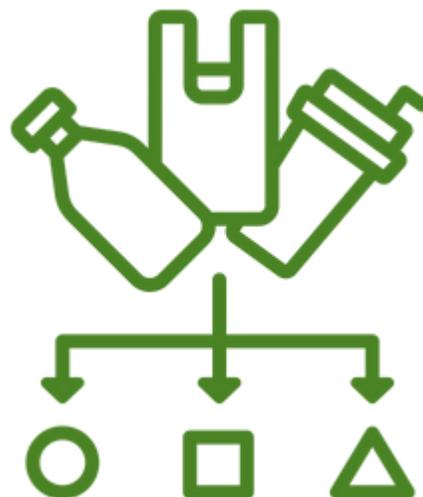


Refine

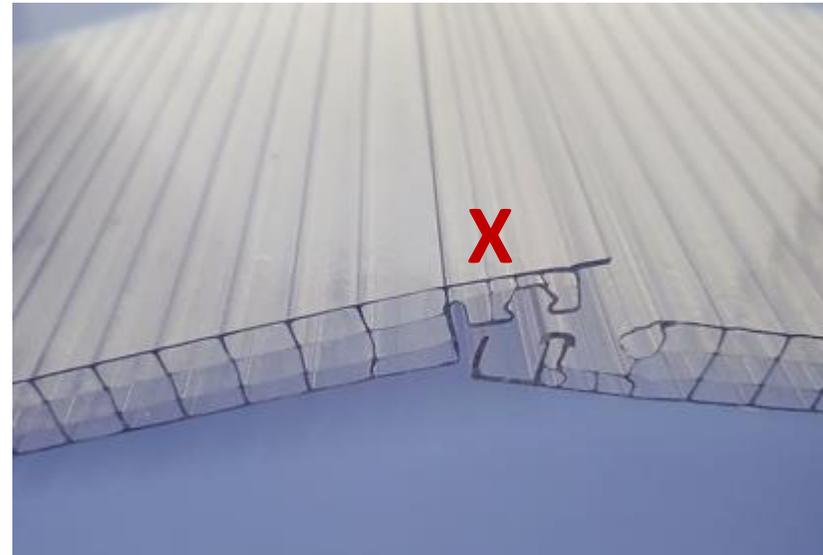


Components to be removed (metal hydraulic siphon
and cap)

Tips for distinguishing a thermosetting resin composite from a thermoplastic object



A fiber-reinforced thermoset resin composite is never perfectly transparent



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A fiber-reinforced thermoset resin composite is never elastic



X

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A fiber-reinforced thermoset resin composite is never a flexible foam



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It is rare for a composite object to have raised marks or signs of a mold connection



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In the broken parts of a composite you can see the fibers covered by the layers of resin



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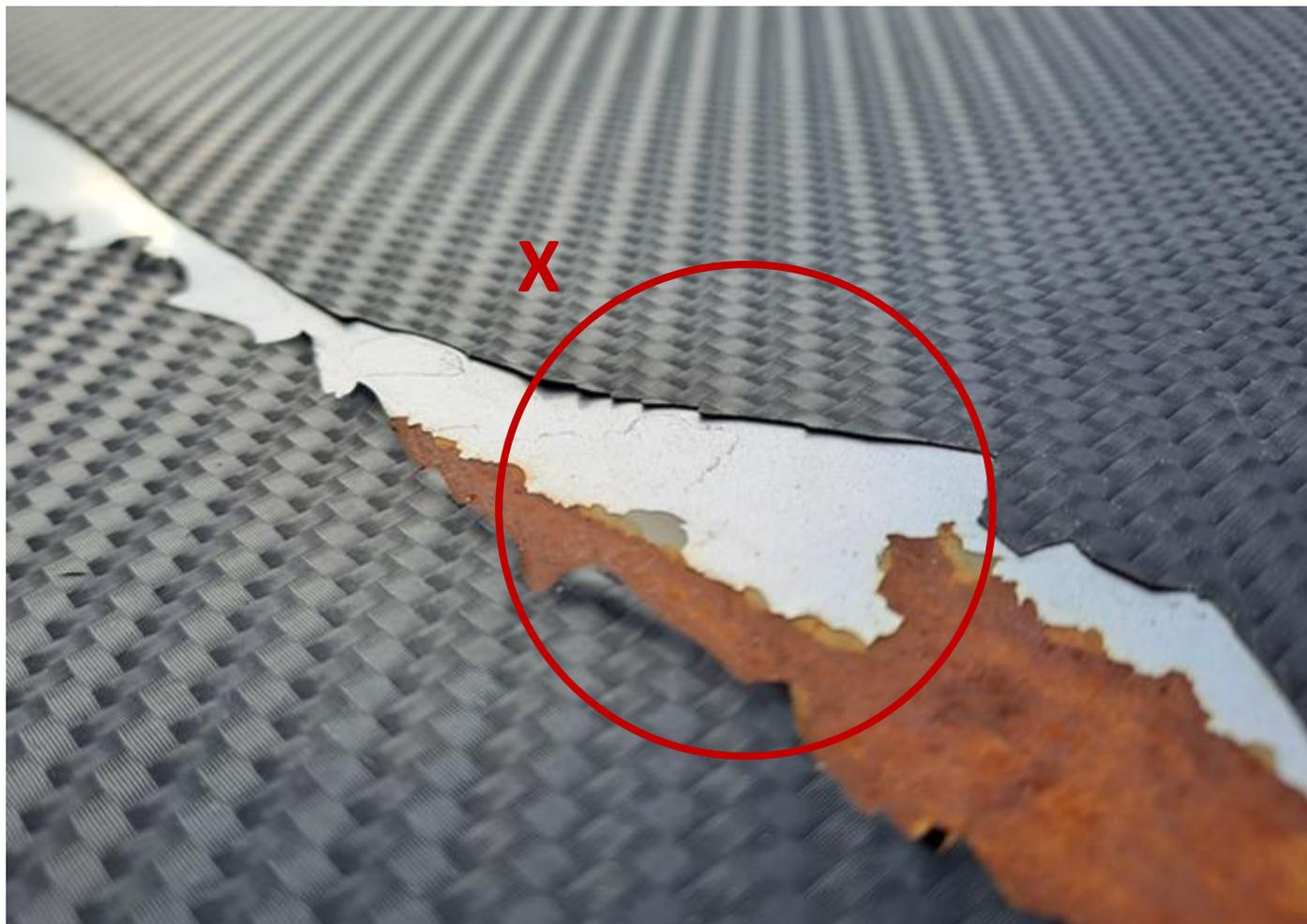
To distinguish a true carbon composite from a coated plastic you have to see the fibers



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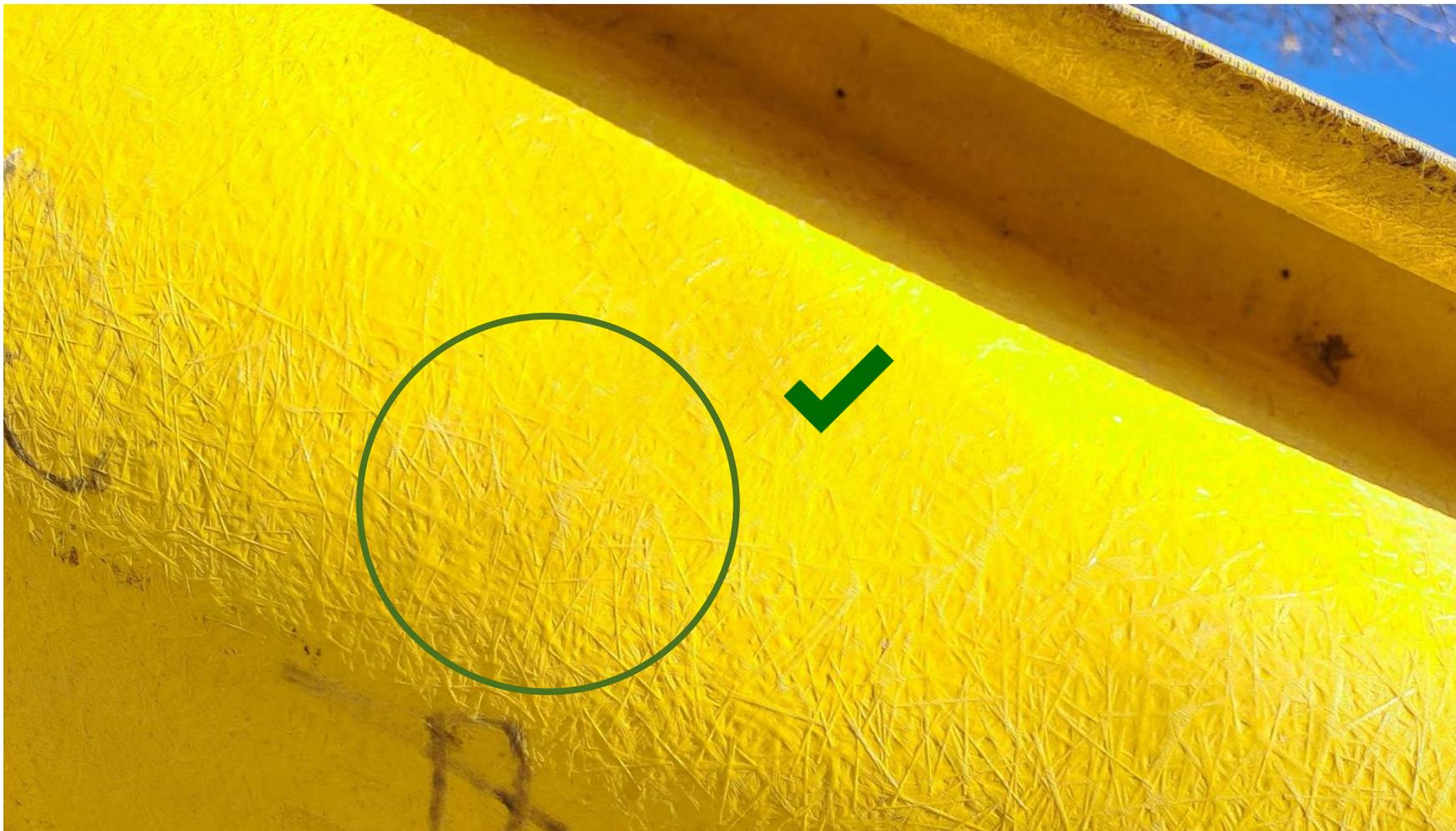
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To distinguish a true carbon composite from a coated plastic you have to see the fibers



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On the underside of a composite, the fibers embedded in the resin are almost always visible



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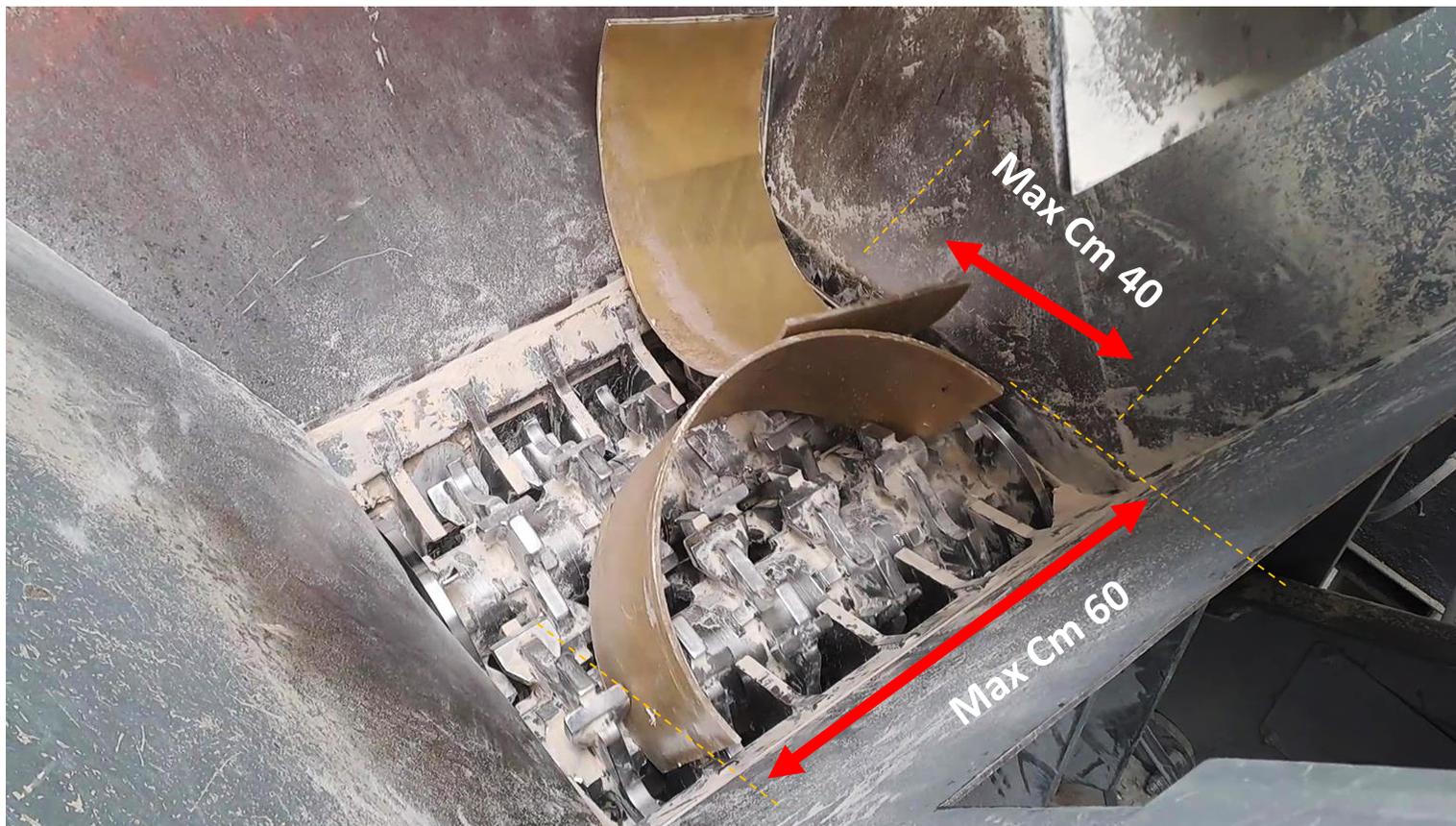
Technical recommendations for the preparation of materials



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*The maximum size of the fragments must be smaller than the opening of the shredder:
Max 40cm x 60 cm*



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Most of the metal inserts are visible and removable with normal hardware tools



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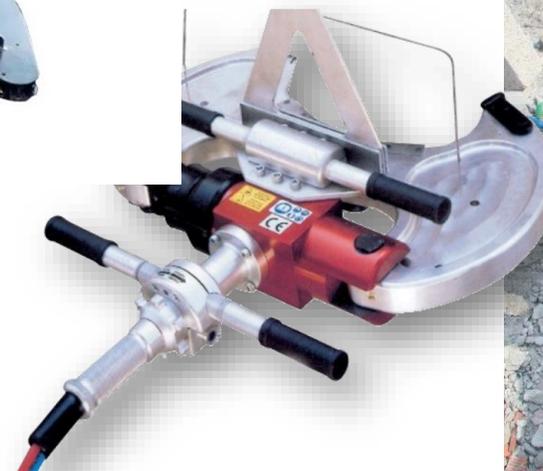
Some metal inserts are not removable and the entire affected portion must be removed



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In order to be processed by the Gees shredder, waste must not exceed the maximum dimensions of 60 x 40 cm



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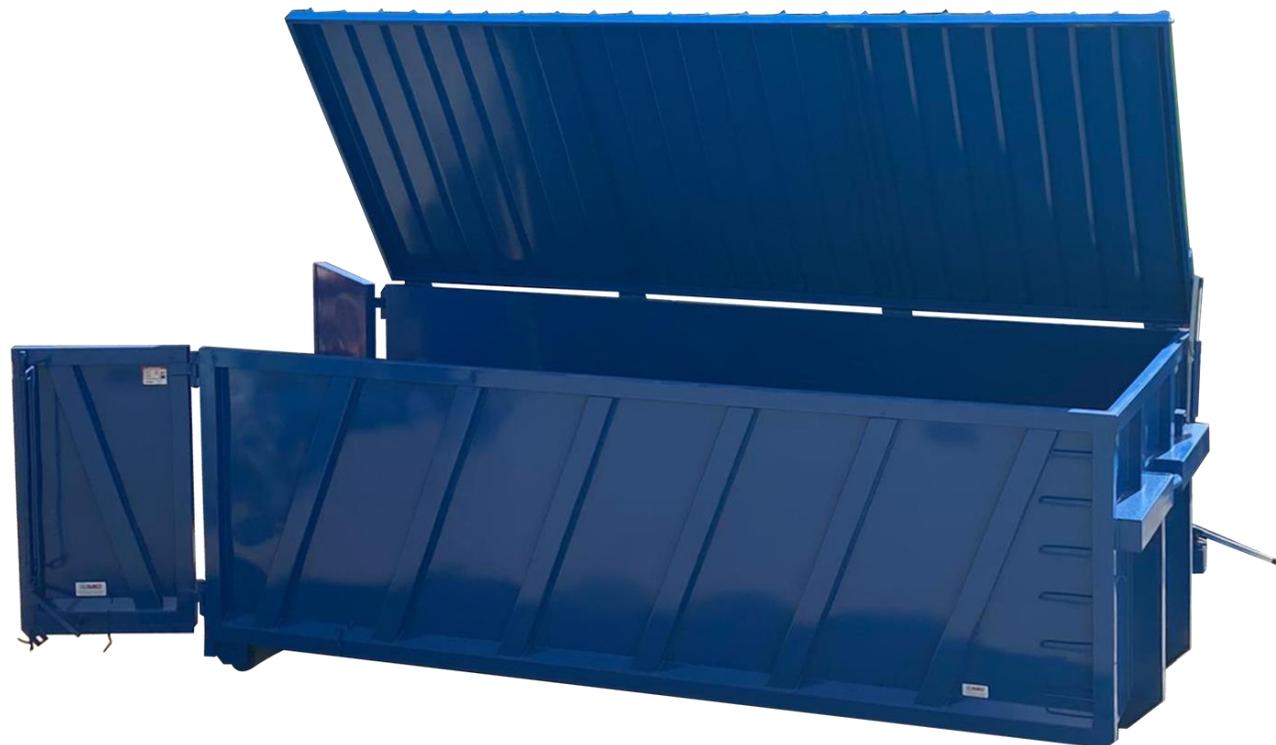
Some composites incorporate wood or other materials that must be removed before grinding



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The transport of waste to the Gees plant must take place in big bags or with a covered tipper



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All components other than the "composite plastic" type must not be delivered to Gees



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Gees will carry out the sorting/removal of components unsuitable for recycling still present in the waste delivered



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