

## 2.3.4. Circular economy

**Population growth influences the availability of the planet's resources and the efficient use of resources and the circularity of the economy are essential. A global challenge requires environmental criteria to be included throughout the whole value chain to minimise the impact of Viscofan's activities.**

Working in conjunction with the whole value chain, Viscofan promotes the sustainable use of resources. Firstly, through the selection, search, and homologation of raw materials, which are then transformed by mechanical and chemical means, producing millions of metres of casing per year. In this process, Viscofan is constantly searching for more efficient technology, which leads to less waste generation and a circular life cycle. Finally, Viscofan's product innovations aim to foster customer innovation and help them in their sustainability challenges.

### Selection of raw materials

We take the utmost care with the raw materials we work with, ensuring that the highest standards of health and food safety are maintained at all stages of production. In addition, a significant proportion of these products are of natural, biodegradable, or recycled origin.

The breakdown of consumption cost by category of the 10 most relevant raw materials is as follows:

Key raw materials	2023	2022
Animal and plant origin	68%	65%
Plastic polymers	8%	10%
Auxiliary chemicals	24%	25%
<b>Total</b>	<b>100%</b>	<b>100%</b>

### Animal and plant origin

- **Cellulose:** Cellulose is a linear polymer composed of glucose units found in the wall of cells in plants, wood, and natural fibres, usually combined with other substances such as lignin, hemicelluloses, and other components. To produce casings, the cellulose chain must be broken to obtain a polymer with the appropriate length for its extrusion in the form of a casing and with very specific elastic properties. This process requires cellulose with a high level of purity, also called "Premium cellulose" or "special cellulose" by our approved suppliers.

- **Collagen:** Collagen is a very common long fibrous protein with remarkable chemical and mechanical properties. It has been used for many years as a basic raw material for several applications, as well as for sausage casings. Among others, it is used in the fields of biomedicine and cosmetics, as well as applications in the food industry. It is also the basic material used in the extensive gelatine industry. The corium, or inner part of the skin of cattle, is mainly used to produce collagen casings, as it is very rich in collagen.

- **Abaca paper:** This is obtained from a herbaceous plant called *musa textilis*. Paper made from its fibres has a high mechanical and moisture resistance and is used at Viscofan to produce fibrous casings. Abaca fibre is also used by other industries to produce high quality paper and non-woven textiles for various uses such as tea bags, paper money and filters.

**Plastic polymers:** Plastic casings are obtained by treating different plastic polymers widely used in different industries. The most used polymers are polyethylene, polypropylene and polyamides.

**Chemicals used as auxiliaries** in the production of different types of casings, the most relevant are caustic soda and glycerine.

## Packaging

Viscofan's business model is characterised by the sale of ingredients or auxiliary raw materials in large volumes to food production companies, so that the packaging sent by Viscofan to the customer is not individualised by product or unit of use. For this reason, packaging is a reduced cost and has not been identified as a relevant aspect within Viscofan's materiality matrix which, moreover, does not end at the final consumer. The majority by relevance and weight are caddies, boxes, and pallets mostly of renewable origin, being packaging used to protect the quality and safety of the casings sent to the customer.

Furthermore, as regards packaging of raw materials, a part of these use reusable packaging, such as the containers that store the collagen skins; another part is biodegradable and recycled, such as the cardboard containing the cellulose paper; and to a lesser extent, other packaging is of synthetic origin, for which Viscofan promotes the recycling of these as far as possible.

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## Efficient and circular management of waste

Viscofan is constantly searching for a more efficient production technology that allows, among other things, a reduction in production waste. Furthermore, as established by the Environmental Policy, the concept of circular economy is included in the decision-making processes on investments and in the planning and execution of activities.

The production of casing is an ongoing process whose characteristics mean that waste will be generated throughout, notably, viscose, collagen mass and discarded casing in the converting process. Likewise, associated with environmental management at the water purification plants and the gas treatment facilities, the Group generates a material amount of waste.

For the management of the waste generated, we use disposal methods that have been determined locally based on local regulations and good practices within the Group, taking into consideration the characteristics of the production process and the raw materials used.

The trend in waste by typology is as follows:

In tonnes	2023	2022	2021	2020	2019	2018
Recovered	36,055	37,345	29,400	26,648	22,673	25,755
Disposed	27,661	31,492	34,010	30,696	26,634	27,668
<b>Total waste</b>	<b>63,716</b>	<b>68,837</b>	<b>63,410</b>	<b>57,344</b>	<b>49,307</b>	<b>53,423</b>

In 2023, the tons of waste fell by 7.4% in a context of moderated production activity caused by the decline in the casings market due to a global trend of reduced customer inventories.

Viscofan is working on greater valorisation of waste by increasing the reuse of products, or recycled use of waste after its corresponding transformation, such as composting, or energy valorisation as a thermal source. In this regard, the consolidation of projects from previous years and the implementation of new ones has allowed the Group to increase the percentage of recovered waste to 57% in 2023 compared to 54% in 2022, and to reduce by 10.2% the intensity of waste eliminated per million metres of extruded casings.

Of the projects implemented in 2023, it is worth highlighting in Cáseda (Spain) the recovery of waste for use as fertilizer that was eliminated in 2022 and the reuse of viscose thanks to facilities designed for this purpose.

The breakdown of waste by type is as follows:

In tonnes	2023	2022	2021	2020	2019	2018
Reused	4,516	6,216	7,966	3,333	2,892	3,412
Recycled	6,206	7,299	6,393	5,142	5,103	7,069
Composted	15,298	16,107	12,995	17,173	13,694	14,029
Energy valorisation	10,035	7,723	2,045	1,000	984,000	1,245
<b>Total waste recovered</b>	<b>36,055</b>	<b>37,345</b>	<b>29,400</b>	<b>26,648</b>	<b>22,673</b>	<b>25,755</b>

In tonnes	2023	2022	2021	2020	2019	2018
Incinerated	3,231	3,314	4,009	4,035	3,902	3,989
Landfill	24,300	27,918	23,192	20,700	18,706	20,734
Other	130,000	260,000	6,809	5,960	4,026	2,945
<b>Total waste elimination</b>	<b>27,661</b>	<b>31,492</b>	<b>34,010</b>	<b>30,696</b>	<b>26,634</b>	<b>27,668</b>



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In tonnes	2023			2022		
	Non hazardous	Hazardous	TOTAL	Non hazardous	Hazardous	TOTAL
Recovered	23,963	12,092	36,055	31,802	5,543	37,345
Eliminated	25,552	2,109	27,661	28,950	2,542	31,492
<b>TOTAL</b>	<b>49,515</b>	<b>14,201</b>	<b>63,716</b>	<b>60,752</b>	<b>8,085</b>	<b>68,837</b>

Moreover, the Viscofan Group has implemented an environmental management system with a view to preventing spillages and leaks, in which it has established management mechanisms and technical control elements. There were no spills or leaks at Viscofan Group facilities in 2023 that had to be reported to the competent authorities, understood as those that cause damage to the external environment of the facility.

### Commitment 2030 to reduce waste elimination

As a signatory of the United Nations Global Compact Viscofan is committed to SDG 12. Responsible production and consumption. Commitment that Viscofan has expressed in an objective with a horizon of 2030 and a base of 2018 to reduce non-circular waste.

Initially, the objective was focused on the reduction of waste destined for landfill, although, in the course of the 2022-2025 Sustainability Action Plan, the requirement has been increased in accordance with a greater identification of the destination of the waste, incorporating the objective of reducing everything that is not recovered, so that by 2030 there should be a 30% reduction in the tonnes of eliminated waste out of a million extruded metres.

The variations in the ratio on a baseline of 100 for 2018 are as follows:

Base 100 year 2018	2030 Commitment	2023	2022	2021	2020	2019	2018
Tonnes of waste eliminated / Metres extruded	70	80	89	102	100	97	100



