

Rescuing Holland's waste sheet glass



Vlakglas Recycling Nederland is an initiative originally launched by Dutch sheet glass manufacturers. Today, this non-profit organisation has evolved to coordinate all the activities associated with recycling and collecting waste sheet glass throughout the Netherlands. Glass International spoke to Cor Wittekoek* about the initiative, and how the company has vastly improved the rate of sheet glass recycling in Holland.

What is the aim of Vlakglas Recycling Nederland?

Our mission and aim is to collect as much sheet glass waste as possible in the Netherlands, in order to have it recycled back into the glass industry.

We support the cradle to cradle (C2C) philosophy, and therefore another aim of Vlakglas Recycling Nederland (VRN) is to ensure that 20% of our collected waste sheet glass will be used in sheet glass production. In 2013 the destination of the collected waste sheet glass was as follows:

- Sheet glass industry - 13%
- Insulation products - 32%
- Packaging glass industry - 55%

When was the company founded?

VRN is a non-profit foundation founded in 2002.

How did the idea for VRN come about?

Before VRN's foundation, waste sheet glass

was collected in Holland – however, the collected cullet was mainly production waste (the clean glass streams).

The combination glass (a mix of all types of sheet glass) was normally dumped in landfill along with other waste. This caused high costs. The founders of VRN wanted to reduce collection and recycling costs by using our collection system.

On **Table 1** you can see the total glass cullet collected over the last 10 years. We do not have exact figures for how much glass still ends up as landfill, but if you compare the total collected in 2003 and the total collected in the following years, there was a growth in the amount of glass collected for recycling.

Who were the founding members of VRN?

Vlakglas Recycling Nederland was founded in 2002 by the Dutch double-glazing industry, sheet glass manufacturers, glaziers and glass trading

companies united in the GBO (Glass Branch Organisation), to meet their responsibilities as producers of sheet glass. The GBO is still involved today, as one of the board members. Our system is a voluntary system and is unique in Europe.

How is the company structured?

There are currently six people employed by VRN. The most important work is the organisation and maintenance of the collection network, providing information about sheet-glass recycling and ensuring receipt of any income that is due.

Operational responsibility is in the hands of the VRN's Managing Director, with the board having overall final responsibility. VRN now has three board members, who meet three or four times a year to discuss the progress of on-going activities and future policies with the

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▲ VRN provides collection containers for companies working at demolition sites, as well as providing free-to-use sheet glass collection points (above left and centre). The cullet is then recycled back into the glass manufacturing process (above right), predominantly into container glass factories.

Year	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Total tons collected	74.821	85.590	89.151	86.000	82.490	73.460	74.044	65.662	61.067	54.572	37.830

▲ Table 1 Collection results (tons).

Managing Director.

Vlakglas Recycling Nederland is a fully independent foundation and does not receive any funds from the government.

Are you present throughout the whole of Holland?

Yes, we are. We have collection points throughout the whole of Holland to ensure the collection of sheet glass from across the country.

What type of glass do you collect for recycling?

We only collect sheet glass for recycling. VRN works with three types of sheet glass: Float glass, laminated glass and combination glass.

Combination glass is a mixture of all kinds of sheet glass: Float glass; insulated glass; wired glass; silvered glass; toughened glass; horticultural glass and coated glass, among others.

How is the company funded?

VRN is financed by means of a waste management levy (waste disposal fee).

This amounts to €0.50 for every m² of insulated glass that is produced in, or imported to, the Netherlands, and every manufacturer and importer is obliged to pay the charge.

The obligation has been imposed by the Ministry of Infrastructure and Environment at VRN's request. This measure is necessary to prevent companies using the system without actually paying anything into it.

Given the confidential nature of the information concerning production figures, the levy is collected by an independent firm of accountants. Even VRN has no access to information regarding the amounts paid by individual manufacturers.

At the moment there are around 245 companies that pay the levy to VRN. In addition, some eight foreign producers pay the fee on behalf of, and as a gesture to, their customers in the Netherlands. Each year, the accountant selects ten companies at random to carry out a check on their contributions.

If any firm refuses to pay the levy or fails to agree to an inspection, VRN will take legal action to compel such firms to cooperate.

How do you organise the collection of glass for recycling?

VRN has set up sheet-glass collection points at around 359 locations in the Netherlands (2014); these are situated near sheet-glass manufacturers and wholesalers, window-frame factories, municipal waste dumps and container companies, and may be used by anyone for the disposal of unwanted sheet glass, at no charge.

Such waste glass may result from the production and processing of glass, for example, or from buildings that are being renovated or demolished.

Each year VRN also hires out containers to around 400-600 companies for their own use, or for projects involving sheet

glass from renovation work, for example. These containers do not serve as collection points for the general public. Furthermore, we also have containers placed in around 179 waste parks.

Waste glass can be collected through our system in various ways:

- Ad hoc (projects): VRN can provide temporary containers for renovation or demolition projects. A rental fee for these containers is required.

- Storage and transfer stations: A company can deposit waste sheet glass at one of Vlakglas Recycling Nederland's affiliated storage and transfer stations. A maximum handling fee of €10.00 p/ton is charged.

- Collection points: Small amounts of sheet glass can be deposited free of charge at Vlakglas Recycling Nederland's collection points. These collection points can be found at selected glass resellers and producers, but also at a number of major waste recycling centres.

- Container rental: Companies can also hire a container for their own use on site.

Containers are replaced three working days after notification has been received that they are full. The number of containers at each location is based on the quantity of sheet glass that is brought to it. VRN works with a single national transport company, which organises the entire operation on our behalf.

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The choice of the transport company is based on the outcome of a tendering procedure conducted by VRN. They also supply the containers for the sheet-glass waste and ensure that no other type of waste is put in them, as this could contaminate the sheet glass.

It is important that the waste glass is clean when it is delivered to the collection points: VRN has high acceptance requirements, which the companies and collection points have to follow to ensure that the waste glass is clean.

Have you received any recognition for your environmental achievements?

In 2013 VRN received the Lean and Green award Star from Connekt. This is an incentives programme which encourages companies to increase sustainability in their logistics, by taking measures which not only yield a saving in costs, but also reduce the environmental impact.

VRN transported about 37,600 tons of glass cullet by vessel to the recycler. This reduces the CO₂ emissions and in 2013 we achieved 23% CO₂ emissions reduction in comparison with 2008 when we started with this programme.

Do you work alongside any other recycling agencies?

VRN works in partnership with two recycling companies in Belgium, as there are no major sheet-glass recycling firms in the Netherlands. The distribution of the tonnage of sheet glass that goes to the recyclers is based on the outcome of a tendering procedure conducted by VRN.

The VRN's haulier then uses the locations of the collection points and the recyclers as the basis for calculating which of the former can most efficiently supply which of the latter.

The recyclers are responsible for recycling the sheet glass and for selling it to the sheet-glass, hollow glass and glass wool industries. However, VRN makes every effort to ensure that as much sheet glass as possible is recycled back in to the sheet-glass industry.

Are you involved with any other projects?

We are currently involved in some projects which we monitor closely. Examples of some of these projects are:

- Research into setting up collection structure in other countries: The system

that VRN has set up in the Netherlands is unique and we are willing to share our knowledge to help other countries implement this system.

- Research into the separate collection of sheet glass waste during demolition projects: We are working in anticipation of the new European legislation banning the dumping of demolition waste, which includes glass also.

- VRN and Maltha Glasrecycling cooperate with AGC Glass Europe in its Flat to Flat recycling project. This project has received a Life+ subsidy from the European Union, and aims to develop and validate an innovative method for recycling and upcycling flat glass. The expected results of this projects are: 12% CO₂ reduction, 5% energy saving, and 25% reduction in the use of raw materials.

Based on figures from 2011, about 20,000 tons of waste glass is lost in the Netherlands in demoiition each year. ■

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