# WINDOWS



Discover our window purchase checklist on page 17.

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## **DEAR READER,**

PVC windows – made for life. With a market share of around 50% all over Europe, PVC windows are the consumer's preferred choice when it comes to installing new windows either in renovation or in new buildings. Certainly, the picture is different across Europe. In South of Europe, consumers are more keen on the aluminium windows. Or, let's take the Nordic countries where timber appears to be the preferred material.

Anyhow, there are good reasons to choose PVC windows. When you look for new ones, it is about energy saving capability, attractive design, comfort, safety, price, installation and future options like 'Smart Home' that has to be taken into consideration. Last but not least, the new windows have to perfectly match with the property.

Moreover, uPVC windows have convincing quality and sustainability credentials. Well-known institutes like the Building Research Establishment (BRE, UK), the Centre Scientifique et Technique du Bâtiment (CSTB, F), RAL Gütegemeinschaft Kunststoff-Fenstersysteme (GKFP, D), KIWA (KIWA, NL) or the Belgian Construction Certification Association (BCCA, B), just to mention a few, certify and label PVC window frames with regard to quality and functionality. Very new in the family of labels is the VinylPlus® Product Label which stands for sustainably sourced PVC material.

This brochure gives a comprehensive view on what we think is important to know about uPVC windows enabling you to make the right choice.

Yours sincerely

Gerald Feigenbutz, Managing Director of EPPA





Dutch window design ©Schüco | schueco.com

SUSTAINABLE DEVELOPMENT: VINYLPLUS®

# LET'S TALK ABOUT SUSTAINABLE DEVELOPMENT



VinylPlus® is the Voluntary Commitment to sustainable development by the European PVC industry. Launched 18 years ago, the commitment was developed through dialogue with stakeholders, including industry, NGOs, regulators, civil society representatives and PVC users. The programme covers the EU-28 plus Norway and Switzerland.

The VinylPlus approach brings together businesses involved at all the different stages of the life cycle of PVC, from the production of virgin PVC, to manufacturers of PVC windows and countless other applications, and ultimately to recyclers.

The VinylPlus programme is committed to building awareness of the benefits of sustainability throughout the value chain and among stakeholders both inside and outside the industry. VinylPlus is an example of just how successful voluntary action by industry can be, with almost 3.6 million tonnes of PVC already recycled since 2000.

Since the beginning of the programme, VinylPlus works with an independent Monitoring Committee made up of representatives from the European Commission, the EU Parliament, trade unions, academia and consumer organisations and is committed to delivering concrete and measurable targets within speci-

fied deadlines, and reporting transparently the results in an annual progress report, which is audited and verified by third parties. As a result, VinylPlus has become a concrete example of voluntary commitment that works in practice and provides a benchmark for other industry initiatives.

## **CONTROLLED-LOOP MANAGEMENT**

One important target of the VinylPlus commitment is to recycle 800.000 tonnes of PVC per year by 2020. This required a controlled loop management, the installation of collection points and the investment in recycling facilities across Europe. New products containing more recyclates have to be developed and made known to the end user. In 2016, VinylPlus recycled almost 600.000 tonnes of PVC waste. Nearly 250.000 tonnes of that volume originated from window profiles.

## **SUSTAINABLE USE OF ADDITIVES**

A major achievement was the replacement of lead-based stabilisers for PVC applications in the EU-28 by the end of 2015. VinylPlus has recently developed the "Additive Sustainability Footprint" ASF, which allows VinylPlus partner companies in the profile sector to assess the additives they use throughout the whole product life cycle.





Italian window design ©Finstral | finstral.com

## SUSTAINABLE USE OF ENERGY AND RAW MATERIALS

To reduce primary energy demand in manufacturing is a focal instrument to combat climate change. **Between 2009 and 2016, PVC window profile system suppliers invested intensively in energy efficient production facilities and thereby reduced their specific energy consumption by nearly 10%.** 

## THE VINYLPLUS PRODUCT LABEL

How can we make the sustainability performance of window profile companies and their products more visible to consumers, architects, specifiers and public procurers? The answer is the new VinylPlus Product Label. Producers of window profiles who want to have the VinylPlus Product Label accredited for their products have to fulfil strict sustainability criteria and will be audited every two years by an independent institute on:

- 1. VinylPlus partnership and programme support
- 2. Organisational Management Requirements
- 3. Supply Chain Management Requirements
- 4. Controlled Loop Management and Recycling
- 5. PVC Resin from sustainable sources
- 6. Responsible use of Additives
- 7. Sustainable Energy and Climate policies
- 8. Sustainability Awareness and Communication

## **VINYLPLUS PRODUCT LABEL**

Several companies in the window profile sector in Europe are sustainability pioneers. Their investments into building controlled loops with their markets and the suitable machinery and processes to increase the recycling content of their products is one of the core achievements that have made VinylPlus so successful.

The VinylPlus Product Label verifies sustainability performance of the companies. It stands for responsible sourcing and the progress industry has made in the last 18 years through the VinylPlus programme.

Companies that have received the VinylPlus Product Label can be regarded as absolute forefront runners in this field and are well prepared for the growing awareness and demand of society towards sustainable development.



Stefan Eingärtner Technical Director of VinylPlus

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# ANNUAL HEAT LOSS AT THE EXAMPLE OF A DETACHED HOUSE Roof Wall/Window -45% Basement ceiling



With a window replacement, heat loss decreases by 40%. If façade and roof are also renewed, you save even more energy. ©Inoutic / Deceuninck GmbH | inoutic.com

**RENOVATION** 

# GREAT OUTLOOK: SAVE ENERGY WITH NEW WINDOWS

To finally be able to enjoy the full view of your garden from the living room couch while daylight floods every corner of the room – this is bound to be the result you are hoping for after your new large PVC windows have been fitted. And no doubt you will also want to keep out traffic noise and cold draughts. So the aim is to improve soundproofing and thermal insulation. If you are planning some renovation work which includes fitting replacement windows, the investment will soon pay off by way of lower energy costs.

Do you actually know how old your windows are? If you replace old windows which are 15 to 20 years old with new PVC systems with triple glazing, for example, the annual heat loss will go down by more than 40%.

At the same time large panes of glass with high heat insulation levels bring added warmth and brightness to rooms in which full advantage can be taken of the daylight. You enjoy the positive knock-on effects of a drop in energy consumption and savings on electricity and gas costs. You can also feel safe and confident in the knowledge that modern windows conform to the latest standards of security and insulation when it comes to keeping out intruders and noise. Roller shutters on the window profile systems also reinforce this effect.

## **SOLUTIONS ALLOWING DISABLED ACCESS**

What else do your new windows need to be able to do? If you are fitting new sliding doors or balcony doors, it makes sense to opt for designs with disabled access as an "investment for the future". Not only do these window systems look stylish and modern but they are also very practical because the sills are flush with the floor, eliminating the risk of tripping on the way in. What is more, the mechanical seals can be lowered to increase the resistance to heavy rain, and the additional locks at the base provide greater protection from break-in.

Whether you are fitting patio doors with disabled access or classic picture windows, your new PVC windows will stay fresh for years, are extremely easy to keep clean and do not need to be painted, giving you enjoyment and clear vision for up to 40 years.



German window design. Pictures: ©Aluplast | aluplast.net

## **DESIGN POSSIBILITIES**

## THE SKY'S THE LIMIT

Whether country house, city villa, Mediterranean style or futuristic architecture with clean lines, you can select from a large range of window designs to finish your dream home to your own personal taste. Which design is your favourite?

## **PURE ELEGANCE**

Is minimalist design your thing? Then windows with concealed casements are exactly right for you. The casement is completely hidden behind the frame which can be almost entirely plastered over, leaving only a narrow frame visible from the outside – perfectly in keeping with the motto of modern architecture that less is more.



For minimalists: windows and patio doors with concealed sashes and conventional construction elements.



Aluminium facing shells combine the advantages of aluminium and plastic - and are available in RAL colours.



Wooden decors from birch to walnut: They look deceptively genuine but are as easy-care as plastic.



What is your favourite colour? The decors are available in many different colours from brilliant blue to quartz grey with sand structure.

## **NATURAL LOOK**

So you're a nature lover? That's why you like wooden window frames so much – if only you didn't need to recoat them every few years. In this case the wood finish options are practical because they combine the natural look of wood, and even the texture of birch, oak or walnut grain, with the easy maintenance of plastic. That only leaves one question: which wood is your favourite?

## **BEAUTIFUL COLOURS**

Does the sight of your favourite colour put you in a good mood? You can get the very same sense of delight when you look at your windows because of the wide selection of different colours, from classic white and elegant anthracite right through to bold shades, such as brilliant blue or bright red.

## **CLEVER MIX OF ALUMINIUM MATERIALS**

Have you taken a shine to the elegant look of aluminium? Aluminium facings will lend your plastic windows a stylish and modern look. At the same time you will benefit from the excellent heat insulating properties of PVC windows. Would some more colour be to your liking? The facings can be coated in any RAL colour.

No matter which design you like best for your PVC windows – all modern window film coatings have a special surfacing technology. It prevents the frame from heating up too much and the colour from fading in strong sunlight, so you can enjoy the colour of your windows for years – as bright and fresh as on the day they were installed.



AIR CONDITIONING

## **ALWAYS FRESHLY AIRED**

Are you planning to replace your windows? Then it is worth thinking about modern ventilation systems in addition to the design, material and glazing options. This is because the better your house is insulated, the more important the correct ventilation is. Windows with built-in ventilation systems are an interesting alternative and are enjoying increasing popularity, regulating the inflow of fresh air in your home even when closed and preventing unpleasant smells and mould.

Even when you are not at home, an automatic window ventilation system works to ensure a pleasant freshness. This is particularly practical in the kitchen or bathroom if there is not enough time to air the room quickly after cooking or showering. How does it work?

Several fans are integrated in the window frame in pairs. One of each pair is drawing in the indoor air and expelling it while the other one is routing fresh air from outside into your home at the same time. In the process, the heat exchanger takes heat out of the stale inside air and this warms up the cool fresh air from outside. You enjoy the positive knock-on effects of a drop in energy costs through the recuperation process which can generate heat recovery levels up to 70%.

## **INDIVIDUAL SETTINGS**

You can control the air interchange at your convenience on a user interface in the window frame, changing the setting to suit your needs. There are several settings to choose from for an even and consistent flow of ventilation. The highest level is ideal after a long bubble bath or after cooking. The ventilation system works intensively for two hours and then automatically reverts to the previous setting.

## STRAIGHTFORWARD INSTALLATION AND FURTHER BENEFITS

Not only are they easy to operate but they are equally easy to install. Experienced window fitters can complete the installation in two to three hours. The ventilation system is fitted completely in the window frame therefore there is no need for any cutting or drilling in the brickwork and so your home stays clean.







British window design ©Veka | veka.com

These are just some of the advantages which make windows with integrated ventilation so popular when renovating. Another plus point is that the ventilation system can be fitted in the side of the main frame where it will be almost invisible. This means you can sit back and relax and just enjoy your new windows without being distracted by additional fittings.

## **5 TIPS TO EFFICIENT VENTILATION**

- 1. About 3 or 4 times a day, open windows briefly to get purge ventilation.
- 2. Leaving windows open too long will cause rooms to cool down.
- 3. In warmer weather, longer ventilation periods can be used. Ventilate around 5 minutes in winter and 20–30 in summer.
- 4. To prevent mould growth, ventilate kitchens after cooking, and bathrooms after using bath or shower. Ventilate bedrooms immediately after getting up.
- 5. Ventilate all rooms regularly, even those that may be used less.



British window design ©Veka | veka.com



**BURGLAR RESISTANCE** 

## **MODERN SECURITY SYSTEMS**

You take it for granted that your windows will withstand storms, heavy rain and hail. It is equally natural to assume that they will keep out would-be burglars. This is why the police recommend fitting burglar-resistant windows in both newbuild and renovation projects. How do you know which ones to buy?

©Salamander Industrie-Produkte | sip-windows.com

The window profiles and fittings have passed several tests on their strength – and are issued with a security certificate. Similarly thorough attention is paid to security during the glazing and assembly process.

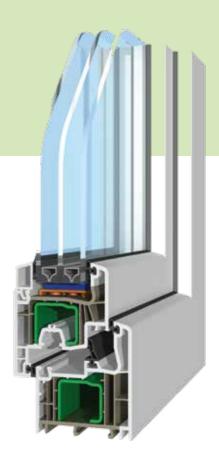
Your home is a haven of peace for you and a place where you feel totally safe and secure. So it is comforting to know that an "invisible shield" is already integrated inside new PVC windows. This is because the modern profile systems are built with multiple internal chambers frequently with aluminium or steel reinforcements, making them particularly resistant to attempted break-ins. Generous rebate depths in the window casement and the use of safety glass provide even more protection.

## **RETROFITTING - AND THE BENEFITS IT BRINGS**

If your windows are only a few years old and in good condition, you can also make them more secure now if you want to prevent uninvited guests. It might make sense if you are planning some renovation work, for example. Security fittings and lockable handles with special cylinder locks can be fitted by the professionals in next to no time and prevent burglars from prying open the windows. Glazing retrofits are a bit more involved. The laminated safety glass is coated with a special film which stops the pane from being smashed.







Modern window systems are characterised by resistance class RC 2 as standard. Picture/table: ©Salamander Industrie-Produkte | sip-windows.com

Resistance classes (EN 1627)	Method adopted by offender (as specified in the standard EN 1627)
RC 1 N	Attempted break-in involving physical force, such as kicking, jumping or cranking actions, etc.  These windows have little resistance to break-in.
RC 2	An opportunist offender will also try to break open the window using basic tools such as screwdrivers, pliers and wedges etc.  These windows have average
	resistance to break-in.
RC 3	The offender also tries to gain entry with a second screwdriver and a crowbar.  These windows have a high level of resistance to break-in.



©Schüco | schueco.com

## **USEFUL INFORMATION – THE RESISTANCE CLASSES**

The basic security of your PVC windows depends on their resistance class (RC), as defined in EN 1627, which indicates whether they have inbuilt protection against being pried open or whether the locks will withstand the force of a drill. Six of these classes apply to windows and doors in total although modern window systems are usually made to comply with RC 2 standard.



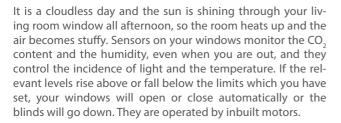
**AUTOMATION AND SMART HOME CONCEPT** 

# PVC ON THE OUTSIDE – SMART ON THE INSIDE

A well-ventilated bedroom, a pleasant temperature in the living room and a comfortable level of humidity in the bathroom – sensors will control all this for you in the Smart Home and will open and close your windows automatically. The future of home automation began some time ago – and you will see that networked windows play a key role. Box-type windows are particularly easy to integrate in the Smart Home concept and they provide high levels of comfort in the home.



Box-type window provides space between the inner and outer sashes that allows the integration of security elements (sensors etc.) for protection against burglaries. ©Veka | veka.com



## **WINDOWS SUITABLE FOR SMART HOMES**

In order to equip your windows with shading and ventilating elements, the sensors and other Smart Home modules need enough space between the inside and outside window sashes. Modern uPVC windows, especially those of the Box-type design, are engineered with this requirement in mind. They can accommodate venetian blinds, roller shutters and pleated blinds as well as electric components which control the ventilation, according to your needs.

## **HIGH COMFORT - LOW COSTS**

In addition to the pleasant indoor feel on hot summer days, you also save costs on air conditioning. They can be as much as 20% lower than with conventional windows. When the weather turns cold, however, the integrated heat exchanger is particularly practical, storing solar heat and releasing it into the room. Not only will you have a cosy home but you will also be saving on heating costs.



Ukrainian window design ©Rehau | rehau.de

## TIPS ABOUT SMART WINDOWS AND BURGLARY PROTECTION

- 1. If your windows are installed correctly, built-in sensors can increase security.
- Consult a specialist or the consumer centre for advice as to which system is suitable for you. Clarify which windows are suitable for Smart Home elements, e. g. ground floor windows or balcony door.
- 3. With Smart Home you can receive notifications on your smartphone once windows are being opened while you are not at home.
- Smart window openers can be customized and controlled remotely (slightly more expensive than sensors).
- 5. To help protect your Smart Home system from hackers, choose a very complex, secure password that you update regularly.









Automatic light protection in the Smart Home: Box-type windows have plenty of room for heat sensors and shading elements such as blinds, pleated blinds and roller blinds as well as electric components. ©Veka | veka.com



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**CLEANING AND MAINTENANCE** 

## LITTLE EFFORT - LOTS OF ENJOYMENT

The frames on your PVC windows are durable, capable of braving the elements, resistant to weathering, and easy to clean. If you follow a few simple steps when cleaning and caring for your windows, you will enjoy them for a very long time. The tips apply to both white and coloured frames.

## REMOVE THE PROTECTIVE FILM AS SOON AS POSSIBLE

The protective film prevents your windows from being damaged in transit and during installation. It is best to remove it as soon as they have been fitted because the longer the profiles are exposed to the sun, the harder it will be to remove the protective film.

## FIRST INSTALLATION THEN CLEANING

Removing cement spills, tile adhesive, mineral plaster and exterior paint (from white and coloured windows):

- Wash the surfaces down with hot water and clean with pH-adjusted soap.
- Soak the spillage for about five minutes and keep spraying with hot water.
- Then take a soft brush and remove the spillage and rinse down several times with hot water.

Removing polyurethane foam, sealants and synthetic resin plaster (especially from uncoated white windows):

- Carefully push the spillage to the side with a semirigid scraper.
- Wipe down with a damp cloth.

## **REGULAR WINDOW CLEANING**

Clean your windows regularly, wiping down the frame and glass in order to remove dust, water stains and other deposits

and to prevent discolouration – using a few drops of washingup liquid in lukewarm water and a soft cloth. Rinse the window frames and the seals with clean water so as to prevent a mixture of dirt, detergent and water from remaining on the frame and becoming baked on the surface.

## FINDING THE RIGHT CLEANING AGENT

Suitable cleaning agents: Washing-up liquid, mild PH-neutral general-purpose cleaner, special-purpose professional cleaning products, alcohol-free glass cleaner and naturally clear water.

**Not suitable for use:** Scouring agents or chemicals (nitrocellulose thinner, benzine, acetic acid, nail varnish remover, alcohol, etc.), cleaners with orange/lemon aroma, cleaners containing ammonia and sulphur (tile cleaner), gritty and abrasive cleaners and aids like steel wool pads or scouring pads

## **CHECKING SEALS AND FITTINGS**

If a seal has come out of its groove, you can press it back in with your thumb, starting at the part which is still fitted in place. Avoid the use of sharp or pointed objects to do this. It is advisable to lubricate all the moving parts of the window fittings with a resin-free and acid-free oil or grease once or twice a year or when the windows are difficult to open or close.

WINDOW PURCHASE CHECKLIST

## HAVE YOU THOUGHT OF EVERYTHING?

Buying new windows is an important decision. Apart from the design and colour, you should also consider insulation performance and technology. This checklist will help your window specialist to advise you better at the start of the process.



## **EPPA TIPS FOR NEW WINDOWS**

- 1. Heat transfer coefficient for the finished window (UW value): less than 1.0 W/m²K
- 2. Glazing: triple glazing for the north side of the building project, double glazing for the south side
- 3. Buy only windows whose profiles are quality certified by BRE, RAL, NF or KOMO, just to mention a few
- 4. Burglar resistance: choose at least class RC 2

WHAT TYPE OF PROPERTY ARE THE NEW WIN- DOWS INTENDED FOR?		
New building Old building		
WHERE WILL THE WINDOWS BE FITTED?		
Living rooms Cellar Garage Utility rooms		
HOW HIGH IS THE NOISE LEVEL/TRAFFIC NOISE IN THE SURROUNDING AREA?		
High Medium Low		
WHAT ASPECTS OF SAFETY AND SECURITY ARE IMPORTANT?		
Lockable window handles  Bars in front of the windows  Burglar-proof systems		
WHAT COLOUR/DESIGN SHOULD THE WINDOWS BE?		
White Wood effect Aluminium facing Different colour		
WHAT TYPE OF WINDOWS WOULD YOU LIKE?		
Tilt & turn windows Fixed glazing		
WHAT FEATURES WOULD YOU LIKE?		
Windows with glazing bars Folding shutters Venetian blinds  Ventilation system Insect screens Roller shutters		
ON WHAT ELOOPS WILL THE WINDOWS RE FITTED?		

First

Second

Third

In the whole house



Simply detach the checklist from the magazine

**ENERGY CONSERVATION AND SECURITY CHECKLISTS** 

## HAVE YOU THOUGHT OF EVERYTHING?

**SECURITY** 

**HAVE YOU ALREADY INSTALLED MECHANICAL** 

Are your windows properly insulated? Find out whether your windows still meet the modern-day heat insulation standards. With the help of the check you can also verify how secure your windows are. Which improvements can be made?

nade?	SECURITY PRODUCTS?
	Yes No
ENERGY CONSERVATION	WERETHEY FITTED BY A PROFESSIONAL WINDOW COMPANY?
WERE YOUR WINDOWS FITTED BEFORE 1995?	Yes No
Yes No	HAVE YOU GOT A BURGLAR ALARM SYSTEM FITTED IN YOUR HOUSE OR ON YOUR DOORS AND WINDOWS?
DO YOU LIVE IN A LISTED BUILDING?	Yes No
Yes No WHAT TYPE OF GLAZING IS FITTED IN YOUR WINDOWS?	DO THE FITTINGS ON YOUR WINDOWS HAVE ADDITIONAL SECURITY MECHANISMS TO PREVENT THEM FROM BEING PRIED OPEN?
Single Double Triple	Yes No
DO YOU FEEL A DRAUGHT WHEN YOUR WINDOWS ARE CLOSED?	HAVE YOU GOT ADDITIONAL LOCKS ON THE WINDOW HANDLES?
Yes No	Yes No
HAVE YOU EVER HAD PICTURES OF YOUR HOUSE/ APARTMENT TAKEN WITH A THERMAL IMAGING CAM- ERA?	CAN YOUR ROLLER SHUTTERS EASILY BE PUSHED UP FROM OUTSIDE?
Yes No	Yes No
WHAT KIND OF ROLLER BLIND CASSETTES/FOLDING	DOES THE DOOR LOCK CYLINDER PROTRUDE BEYOND THE STRIKE PLATE?
SHUTTERS DOES YOUR HOUSE HAVE?	Yes No
Built-in roller blind cassettes  Wall-mounted roller blind cassettes	HAVE YOU INSTALLED ADDITIONAL SECURITY LOCKS?
Sliding/folding shutters	Yes No





Recycling Cycle. Pictures: ©Rewindo | rewindo.de

**RECYCLING** 

## **PVC WINDOWS DO HAVE SEVERAL LIVES**

Imagine that you are having new windows fitted and may be wondering what will happen to your old windows. They are much too valuable to throw away therefore they are recycled. New profiles are made out of the small pieces of PVC which are formed in the recycling process. A plastic profile can be recycled and reused at least seven times in this way – and the same high quality standard can be achieved every time.

If you have opted for modern PVC windows again, you will find that today they are made using recycled PVC, metal and glass.

## **ADVANTAGES OF RECYCLED WINDOWS**

Windows containing recycled PVC boast the customary durability and strength while requiring a very low amount of maintenance. This is also confirmed by independent tests carried out by certifying body like RAL Gütegemeinschaft Kunststoff-Fensterprofilsysteme. The scope for design in terms of finish and colour remains virtually unlimited. And if the windows need replacing again after 30 to 40 years, the old windows can simply be recycled again.

In addition to the quality of the windows, the profiles containing a percentage of recycled material offer even more advantages, such as the avoidance of harmful greenhouse gases (e.g. a saving of almost two tonnes of  $CO_2$  is made on every tonne of recycled PVC which is used for new profiles in comparison with primary PVC).

## **NEW LIFE FOR OLD WINDOWS**

The leading European manufacturers of profiles have joined forces to tackle the issue of window recycling. In Germany, for example, they started up the Rewindo initiative in 2002 with

the aim of increasing the amount of recycling, thereby preserving both the environment and resources. Many countries collect used PVC windows and feed specific recycling plants in France, Germany and United Kingdom, which then supply PVC window profile manufacturers and hence close the controlled loop. In 2017, for example, around 60,000 tonnes of PVC were reclaimed from old windows and reused. This corresponds to about 3.6 million window units, which have a new life to look forward to.

## HOW YOUR OLD WINDOWS ARE RECYCLED

- 1. Old PVC windows are shredded and ground into even smaller pieces.
- 2. Then metal, rubber, glass splinters and plastic are separated from each other.
- 3. The plastic is then heated and filtered.
- 4. The resulting PVC is used as a pure source material for new plastic windows with a recycled core.
- 5. Glass and metal are recycled separately in special processing plants.

