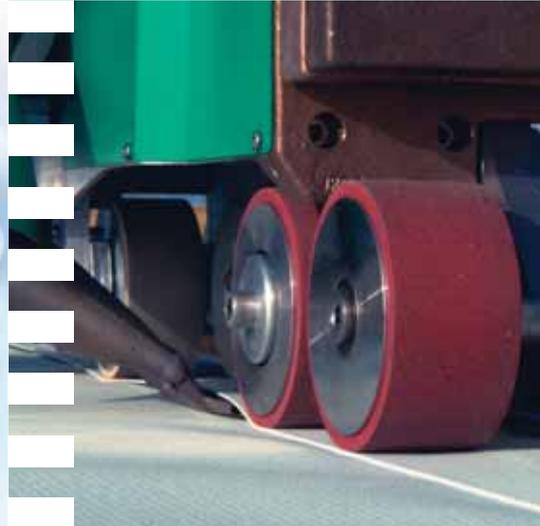
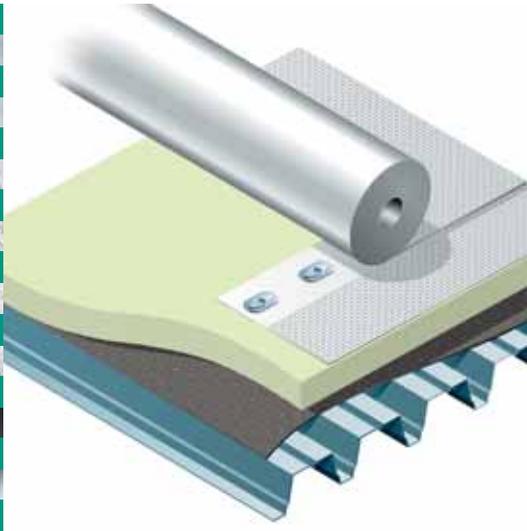
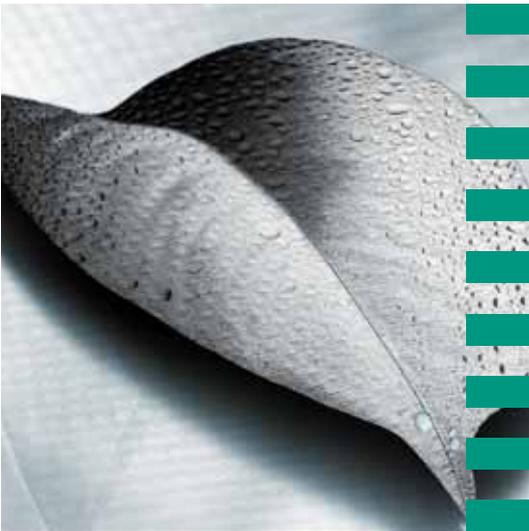


# Spectra ROOF<sup>®</sup>

SINGLE PLY ENGINEERING



**The most advanced and sustainable polymer technology ever applied to one roof concept**

**Spectrarooft<sup>®</sup> combines the best properties of elastomers and thermoplasts**

From its headquarters in the Netherlands, Spectrarooft has grown from being a leader in the Benelux market to a major international waterproofing company with local offices throughout Europe.



- More than 35 years of experience in waterproofing
  - expertise in roof waterproofing materials
  - expertise in liquid products
  - expertise in civil engineering and swimming pools
  - expertise in Roof Engineering from design to execution and after sales
- Training center for Spectrarooft® approved contractors
- An innovator and leader in roofing and waterproofing
- Operating in the framework of a European organisation with sister companies in North America
- Sustainable, environmental friendly, durable roofing systems
- International certifications and approvals according EN-standards

## Spectrarooft® in the IKO Group

- Autonomous division within the IKO Europe organisation
- Knowledge centre for polymeric single ply roofing systems
- Research and Development in close cooperation with suppliers and new material producers
- Exclusive total packages, based on Roof Engineering

## IKO Setting the standard

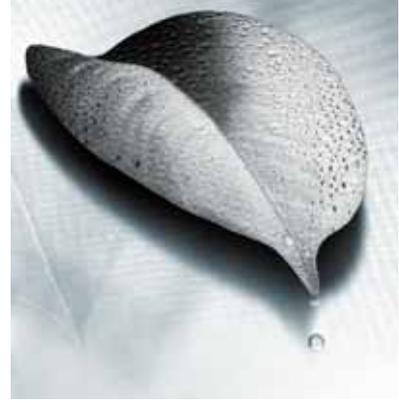
- Global headquarters in Toronto, Canada and European headquarters at Atab in Antwerp
- More than 30 plants worldwide
- 3,500 employees
- Biggest manufacturer of bituminous roofing and waterproofing products and bitumen shingle waterproofing.

IKO in North America



IKO in Europe





## Spectrarooftm roof systems

The Spectrarooftm TPE Roof Engineering concept includes:

### **Spectra PLAN** TPE ROOFING SHEETS

#### **Spectraplan TPE**

The latest generation in single ply synthetic roofing sheets. Roof systems conforming to European standards, and combining all the best characteristics of thermoplasts (e.g. PVC) and elastomers (e.g. EPDM).



Spectraplan SM, reinforced roof sheets for mechanically fastened roof systems.



Spectraplan SG, fleece-backed sheets for partially or fully bonded roof systems.

### **Spectra ROOF** ROOF ACCESSORIES

#### **Spectrarooftm Roof Accessories**

Complete range of accessories, detailing and roof security for applications in combination with Spectraplan sheets.



### **IKOfix**

#### **IKOfix**

Complete range of mechanical fastening systems for Spectrarooftm, from synthetic to stainless steel parts, depending on the specific requirements of your roof.



### **IKOclip**

#### **IKOclip**

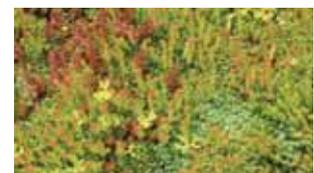
Range of roof security for Spectraplan synthetic roofs.



### **tekno detail**

#### **Teknodetail**

Complete range of liquid waterproofing systems for complex roof detailing on Spectrarooftm installations. Also suitable for temporary repairs/protection and for maintenance/renovation work.



#### **Spectrarooftm Roof Gardens**

Exclusive concept in intensive roof gardens (soil layer > 200 mm) and extensive roof planting (package > 60 mm), either in isolation or in combination with Spectraplan manufactured roof ponds and water gardens.



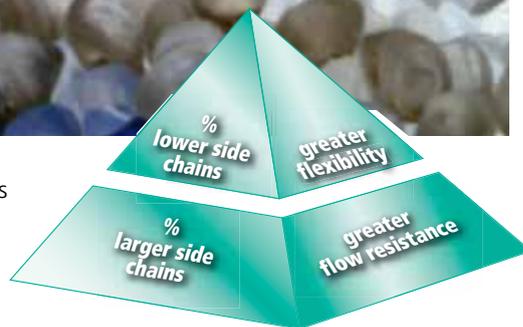
## TPE as the basic polymer in Spectraplan<sup>®</sup> roofing sheets



TPE is the collective term for a particular group of polyolefins with the basic properties of elastomers (flexibility, elasticity), but which can be processed as thermoplasts (thermal softening, plastic deformation).

Polyolefins are polymers (plastics) based exclusively on carbon and hydrogen; examples include modified polyethylene and polypropylene. These more traditional polyolefins are well known thermoplasts which exhibit some excellent properties, and are commercially known as TPO.

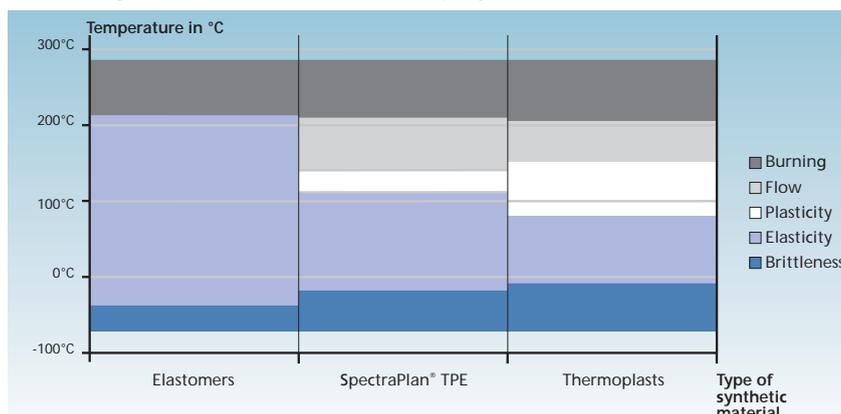
However, the use of state-of-the-art catalysts in a unique process gives rise to very pure polyolefins with a predominantly elastomeric nature, resulting in the thermoplastic properties being more controllable (TPE).



### TPE in Spectraplan<sup>®</sup>, offers the favourable properties of both thermoplasts and elastomers.

- TPE has a chemically ingrained flexibility, in contrast with the thermoplasts, the “flexibility” of which is derived from the physical behaviour of the additions to the polymer chains (softeners, rubber additives, synthetic modifiers).
- TPE displays wide-ranging flow behaviour, while elastomers do not exhibit any flow behaviour. Thanks to the unique properties of TPE as an engineered polymer, TPE has already been used for many years in extreme (industrial) applications, and now also as roofing sheets. Spectraplan<sup>®</sup> TPE roofing sheets offer solutions for all existing single-ply roofing systems; mechanically fastened, loose laid and ballasted, partially or fully bonded.

### Summary of synthetic materials Processing characteristics of the basic polymer



## The exceptional product properties of Spectraplan<sup>®</sup> roofing sheets

### High resistance to ageing

Spectraplan<sup>®</sup> roofing sheets hardly degrade under UV exposure. The action of ozone does not cause surface erosion. Standing water does not have any detrimental or leaching effects. This ensures a very long life expectancy for Spectraplan<sup>®</sup> TPE roofing systems.

### Reliable and secure seam welding

The Spectraplan<sup>®</sup> TPE polymer has a very broad "thermal welding range", which minimises its operational sensitivity. This is determined by the excellent flow behaviour of the TPE polymer. Spectraplan<sup>®</sup> roofing sheets also have high internal cohesion. The use of identical TPE polymers at the top and bottom side of the roofing sheets, combined with the excellent flow behaviour, produces a homogeneous and reliable weld, which is stronger than the roofing sheet itself.

The TPE polymer does not absorb water, thus ensuring a high quality heat-welded joint, even after ageing.

### Non-capillary construction

The excellent flow behaviour of the polymer ensures perfect coating of the polyester fibres of the carrier so that no capillaries are created. Spectraplan<sup>®</sup> TPE roofing sheets are reinforced with fibres that do not absorb moisture. Additional security is provided by the homogeneous selvedge, produced during manufacture.



*Spectraplan<sup>®</sup> roofing sheets are produced with a homogeneous selvedge.*

### Resistance to root penetration

The elastomeric nature of the TPE provides Spectraplan<sup>®</sup> roofing sheets with particularly good resistance to root penetration.

### Chemical resistance and compatibility

The high degree of purity in the TPE polymers, their amorphous structure and the absence of volatile substances lead to exceptionally high chemical resistance.



*Spectraplan<sup>®</sup> is completely compatible with bituminous roofings.*

Spectraplan<sup>®</sup> TPE roofing sheets are resistant to many organic and inorganic substances and solvents. Spectraplan<sup>®</sup> TPE roofing sheets are also compatible with bitumen and they can be directly applied to (existing) bituminous coverings and polystyrene (EPS/XPS), without a separation layer being required.

### Elasticity

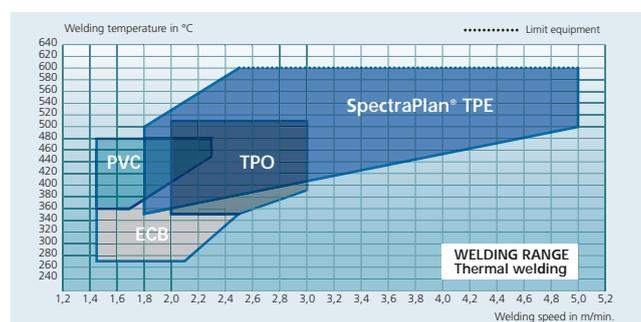
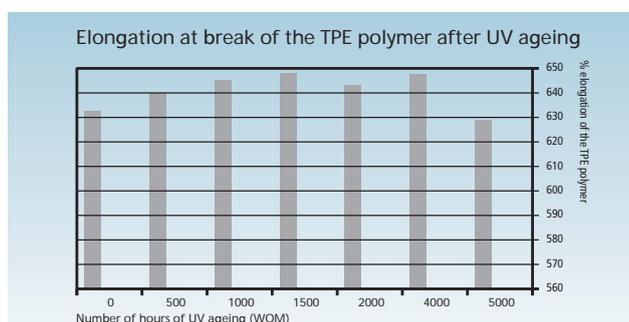
Due to the long lasting high degree of elasticity of TPE, Spectraplan<sup>®</sup> roofing sheets have high resistance to fatigue and point loading. Movement within the substructure can also largely be accommodated without the need for special detailing.



*Spectraplan<sup>®</sup> thermal weld overlap. Weld stronger than the roofing sheet itself.*

### Memory-effect

Unlike TPOs, the "memory effect" associated with elastomers occurs with Spectraplan<sup>®</sup> TPE roofing sheets. As a result of this the installations obtains a taut appearance, without this being caused by the exertion of force as tension at the perimeter.



## The most advanced and sustainable polymer technology ever applied to a single roof concept

### Long life expectancy



The homogeneity of Spectraplan® TPE basic polymers and the absence of softeners result in a very stable chemical compound. Spectraplan® roofing sheets remain elastic almost indefinitely and barely age. They do not absorb moisture, do not degrade under UV and/or ozone exposure, do not leach and are rot resistant. Spectraplan® TPE roofing sheets have exceptional chemical resistance and are compatible with all standard building materials. Spectraplan® TPE roofing sheets can deservedly be considered as a further development and improvement of the current generation of TPO roofing sheets. The life expectancy of Spectraplan® TPE roofing systems is at least 25 years.



### Environmentally friendly and recyclable



In contrast to the chlorine containing polymer sheets which exist in the market, Spectraplan® TPE roofing sheets are particularly environmentally friendly. Spectraplan® TPE roofing sheets are free of halogens (Chlorine, Fluorine, Bromine and Iodine), softeners, (H)CFCs and heavy metals. TPE polymer is homogeneous and pure, so that recycling as a durable raw material in new primary end products is possible at the end of its long lifespan.

Spectraplan® TPE roofing systems do not leach and can therefore be installed on a wide range of water storage applications and on roofs where rainwater is directly discharged to surface drainage.



### Safe and reliable installation



Spectraplan® TPE roofing sheets are thermally welded using hot air. No noxious or irritating vapours or smoke are released during the welding process. Spectraplan® TPE roofing sheets contrast sharply with all commercially available thermoplasts thanks to their unique and broad welding range and the excellent flow behaviour of the TPE polymer. This results in fast installation with a high degree of certainty and excellent quality of the weld, which is stronger than the actual roofing sheet itself. The use of noxious detergents is not required following the welding.

Spectraplan® TPE roofing sheets can be easily processed even at the highest summer temperatures and also remain flexible under cold winter conditions. Spectraplan® TPE roofing systems can even be applied on roofs under extreme loads such as rooftop car parks and roof gardens.



## Optimal fire safety for people and the environment



Spectraplan® TPE roofing systems are fire resistant in accordance with the new stringent European fire standard ENV1187. The fire retardants used in Spectraplan® TPE polymer are non-toxic and free of halogens. In case of fire Spectraplan® TPE roofing sheets do not contribute to the smoke load and no toxic gases are released; nor does any flame extension take place due to melting TPE polymer dripping down.



Fire test ENV 1187/1 ignition.



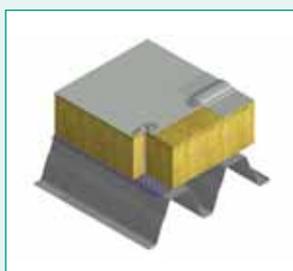
Result of fire test ENV 1187/1.

## High resistance to wind uplift



The IKOFix® mechanical fastening systems has been specifically designed for the Spectraplan® SM sheet range. It includes corrosion resistant screws and washer plates, flat bars for clamping frames, and is applicable to any substrate suitable for mechanical attachment.

The combination of IKOFix® mechanical fastening system with the exceptional mechanical properties of Spectraplan® SM TPE roofing sheets results in a particularly high capacity to absorb forces and divert them to the substructure. This makes it feasible to calculate a cost-effective fastening system for each and every project.



## Maintenance and repair friendly



Spectraplan® TPE roofing systems do not absorb moisture and are only affected by dirt-pickup to a very small degree. This means that it remains possible to make repairs or add further details if required in the future.

Spectraplan® TPE roofing systems are easy to clean with solutions of soft soap, using a soft broom or rubber wiper. High-pressure cleaners can also be used.





**UNION EUROPÉENNE POUR L'AGRÉMENT TECHNIQUE DANS LA CONSTRUCTION**  
**EUROPÄISCHE UNION FÜR DAS AGRÉMENT IM BAUWESEN**  
**EUROPEAN UNION OF AGREEMENT**

**Euro-Agrément**

**Procedure No 007/04/E**

**(UBAtc ATG 04/2603)**



**UBAtc - Belgium**  
**Initiation Institute**



**TZUS - Czech Republic**  
**Co-operating Institute**  
**Protokol C 010\_011555**



**BBA - UK**  
**Co-operating Institute**  
**BBA-UK 05/4203**



**TSUS - Slovakia**  
**Co-operating Institute**  
**Certifikat 2601A/04/0520/1/c/c04**



**KOMO/INTRON - The Netherlands**  
**Co-operating Institute**  
**CTG 471/1**

This cover page relates to UEAtc Euro-Agrément procedure. The Euro-Agrément product assessment aspects in the attached document are accepted in Belgium and the Netherlands, Czech Republic, Slovakia and United Kingdom for issuing national Agréments in those countries. National transpositions include statements covering national Building Regulations and other national provision as appropriate.

**Spectra ROOF**<sup>®</sup>



IKO LTD



SPECTRAROOF B.V.