

Brock International BV
Performance Base F Series and Play Base products

Environmental Compatibility and Recycling

January 1st, 2011



Brock International BV

Manufacturers Declaration

Brock International BV, certifies the following:

Product Content

Brock Performance Base F Series and Play Base products are manufactured of 100% white ARPRO™ expanded polypropylene grades 3122 and 3135, supplied exclusively by JSP International.

Banned Substances List - Cradle to Cradle™ Certification Program

None of the substances mentioned on the Banned Substances List for the Cradle to Cradle™ Certification Program is used as an additive or raw material in the manufacture of ARPRO™ and Brock Performance Base F Series and Play Base products.

DIN Environmental Standard

The Brock Performance Base F Series product has been tested, complies, and exceeds all requirements for the DIN V 18035-7 environmental compatibility standard.

Swiss ESSM Environmental Standard

The Brock Performance Base F Series product has been tested, complies, and exceeds all requirements The ESSM 105d "Swiss guideline for the assessment of the environmental compatibility of flexible plastic pavement on outdoor installations", as issued by the Swiss Federal Sport Institute in Magglingen.

Foodstuffs Contact

Brock Performance Base F Series and Play Base products manufactured with white ARPRO™ comply with European legislation 2002/72/EC of 06/06/2002 and Corrigendum 13/02/2003 relating to plastic materials and articles intended to come into contact with foodstuffs, and its amendments 2004/1/EC, 2004/19/EC, 2005/79/EC, 2007/19/EC and 2008/39/EC.

Recycling

Brock Performance Base F Series and Play Base products manufactured with ARPRO™ are 100% closed-loop recyclable, with no limit to the number of times the material can be recycled.

January 1st, 2008

Brock Performance Base F Series

Summary of DIN and Swiss ESSM environmental testing

A summary of environmental testing and the results of the F Series and Play Base material is as follows:

German DIN standards are the most widely recognized international standards in Europe and are in general either identical or more stringent than EN standards. The DIN V 18035-7 is the established standard for components of sports surfaces. The DIN V 18035-7 consists of both a product identification section and an environmental compatibility section.

The ESSM 105d standard is the “**Swiss guideline for the assessment of the environmental compatibility of flexible plastic pavement on outdoor installations**” as issued by the Swiss Federal Sport Institute in Magglingen.

The DIN V 18035-7 and Swiss ESSM 105d environmental standards for playing surfaces nearly identical in terms of test method but have notable differences in terms of requirements for the leaching of contaminants into the groundwater.

There are two categories of ESSM requirements: standard water protection and groundwater protection zone (infiltration into groundwater)

The ESSM requirements for standard water protection and the DIN standard are very similar.

There are two requirements for ESSM groundwater protection zones that are much more stringent; one is the relative to dissolved organic compounds (DOC value) which refers to semi volatile and volatile organic compounds, and the other is zinc. These results expressed in the report refer to the detected quantities of these elements after the test sample has been soaked in water. Therefore these elements would potentially leach into the groundwater. For groundwater protection zones the ESSM DOC (organic carbon) requirement is 1/7 the allowable value for ESSM standard water protection and 1/13 the allowable for DIN. The Zinc requirement is 1/10 the allowable value for ESSM standard water protection and 1/15 the allowable for DIN.



Below is a summary as to how the DIN and ESSM standards compare and the ESSM test results of the Brock F Series:

Key groundwater protection requirements and results:

Element	DIN requirement	ESSM water protection	ESSM groundwater protection	Brock Result – ESSM report	Comment
DOC	$\leq 40\text{mg/l}$	$\leq 3\text{mg/l}$	$\leq 3\text{mg/l}$	<math>< 1\text{mg/l}</math>	Pass - less than 1/3 min. allowable
Zinc	$\leq 2\text{mg/l}$	$\leq 2\text{mg/l}$	$\leq 0.2\text{mg/l}$	0.08mg/l	Pass – 2.5 times less than min. allowable

Other important results:

Lead	$\leq 0.04\text{mg/l}$	$\leq 0.05\text{mg/l}$	$\leq 0.05\text{mg/l}$	<math>< 0.001\text{mg/l}</math>	Pass – 40 times less min . allowable
Cadmium	$\leq 0.005\text{mg/l}$	$\leq 0.005\text{mg/l}$	$\leq 0.005\text{mg/l}$	<math>< 0.0001\text{mg/l}</math>	Pass – 50 times less min. allowable
Chromium	$\leq 0.05\text{mg/l}$	$\leq 0.05\text{mg/l}$	$\leq 0.05\text{mg/l}$	<math>< 0.002\text{mg/l}</math>	Pass – 25 times less min. allowable
Tin	$\leq 0.05\text{mg/l}$	$\leq 0.5\text{mg/l}$	$\leq 0.5\text{mg/l}$	<math>< 0.002\text{mg/l}</math>	Pass – 25 times less allowable
Mercury	$\leq 0.001\text{mg/l}$	no requirement	no requirement	0.001 mg/l	Pass – DIN requirement

The test method consists of soaking the sample in non-ionic or non-ionic water with bubbling CO₂. an exact description of the test method is as follows:

Method: Leaching with non-ionic water and the second eluate (24 to 48hrs) is analyzed. According to ESSM semivolatle and volatile organic compounds (DOC) are additionally analyzed in the leachate. This is an additional requirement from the authorities of the cantons of Switzerland.



Conclusion:

The Brock F Series and Play Base material complies and exceeds the world's most stringent groundwater protection standard, the Swiss ESSM 105d. The Brock F Series fulfills the DOC and Zinc requirements with at least 2.5 times less than the minimum allowable value.

The Brock F Series and Play Base material fulfills and exceeds the requirements by 25 to 50 times, both DIN and ESSM standards for leaching of lead, Cadmium, Chromium and Tim.

The Brock F Series and Play Base material fulfills the DIN environmental requirement for mercury leaching.

Both the DIN and ESSM standard include scanning for heavy metals and the results of both reports are that there are no heavy metals detected in the Brock F Series and Play Base material.

Recycling Brock International Products

Brock International has designed all of our underlayment products to be recycled and is committed to supporting customer's recycling efforts at the end of the useful life of the Brock product.

The following Brock products are 100% closed-loop recyclable, with no limit to the number of times the material can be recycled:

1. Brock Performance Base F24 and F20 panels (Europe)
2. Brock Play Base panels (Europe)
3. Brock Power Base panels (U.S.)
4. Brock PaverBase panels (U.S.)

Note: These products, except for Play Base, may be re-used as insulation under roads, or as an underlayment for paver stones without the need for recycling.

When Brock panels are used in an athletic field, the relevant information is entered into a permanent Brock recycling database. This database records the site location, number of panels and date of delivery. Database records are given to our recycler each year so the recycler can verify the material type when recycling is eventually required.

When an athletic field or playground must be recycled, the following is an overview of steps to be taken by the owner of the Brock material:

1. Contact Brock International for current recycling procedure and ship-to locations for the recycler. Brock can provide supervision of this whole process if required for a nominal fee.
2. Brock will verify the material type and notify the recycler of quantity to be recycled.
3. The panels must be removed individually by hand from the field intact, cleaned with a power washer (no soap, just high pressure water spray) and stacked on pallets to dry.
4. When dry, pallets are loaded into full truckloads and shipped to our recycler collection point (multiple locations available).
5. The recycler will receive and accept the material to be recycled at no additional cost.
6. The recycler will transform material into new expanded polypropylene foam parts, which may later be recycled again.

Detailed instructions for panels to be recycled are as follows:

Step 1 – Contact Brock for any updated recycle process information and collection point information. Brock will advise recycler of material to be sent, and will verify your material content for recycling.



Step 2 - First remove the infill and artificial turf over the Brock panels. Specialized equipment from the SMG Company is now available to facilitate the removal of infill. Remove the Brock product panels from the pitch or play area and take to a cleaning station where they will be cleaned of inert materials (sand, dirt, dust). We estimate this will require one person one day per 400m².

Step 3 – Clean both sides and edges of each panel with a high pressure washer using water only, no soap. There should be no loose dirt or debris on any of the cleaned panels.

Step 4 – Stack the cleaned panels on a pallet –

Performance Base F24 and Play Base 24 panels – stack 42 panels per pallet

Performance Base F20 – stack 50 panels per pallet

Play Base 50 – stack 20 panels per pallet

Play Base 38 – stack 27 panels per pallet

When each pallet stack is full, tie twine around the pallet and panels in both directions to keep them together before and during shipping.

Step 5 – Allow to dry for 24-48 hours. Keep in the sun if possible. Be sure panels are secure on pallets from wind. It is not recommended that pallets are stacked on top of one another at the work site, which can represent a safety hazard.

Step 6 – Load pallets onto a transport vehicle. Stack pallets two-high and completely fill the truck volume: Loads for standard Eurotrailers or 45' palletwide container trucks:

Performance Base F20, F24 and Play Base 24 – 34 pallets per load

Play Base 50 and Play Base 38 – 26 pallets per load

Step 7 – ship to closest recycle point:

FISCHER GmbH
Am Waldeck 6
D-77855 Achern-Wagshurst
Germany

FISCHER GmbH
Bavenstedter Straße 95
D-31135 Hildesheim
Germany

FISCHER Kunststoff &
Sekundärrohstoff GmbH
Ziegelscheune 1b
D-09496 Marienberg
Germany

IGRO s.r.o.
Husitská 49, 347 01 Tachov
Czech Republic

Recyclast
Blahoslavova 636/26A
360 09 Karlovy Vary
Czech Republic

PAPREC PLASTIQUE
Z I De Chicago
55100 VERDUN
France

For Brock contact information please visit www.brockeurope.com