



tretford Cord Carpet and the Environment

Contents

Section	Page
Introduction	1
Environmental Policy Statement	2
Raw Materials – Eco-Preferred Content	3
Manufacturing – Environmental Management System	4
Installation – Designed for Disassembly	7
In-Service - Durability	8
Post-Consumer	9
Modularity	10
ISO 14001 Certification	11
Appendix – Sample Extended Wear Warranty	12



Introduction

We believe that business should act in a responsible manner for the benefit of all its stakeholders. We consider our stakeholders to include not just our shareholders, our employees, our suppliers and our customers, but also the local society in which we operate and the global society from which we draw our raw materials and into which we sell our products.

This document outlines our approach to issues and practices of environmental concern.

It is not intended to be an exhaustive document but one which reflects an ever-evolving position and a desire to constantly improve.

It is also not a complete document because it concerns only our environmental policy. We acknowledge that an outwardly, environmentally-responsible business is not necessarily a responsible business if its environmental efforts are not consistent with or are undermined by policy decisions taken in other areas. We have been careful to adopt an integrated approach to the development of our environmental initiatives and policies so that they are net positive and sustainable.

We have considered the impact of both our manufacturing operations and the materials and products we consume and produce. Our Environmental Management Systems are continuously reviewed and up-dated and are integrated at all levels within our organization.

We examine, evaluate and review energy usage in our manufacturing processes and implement energy conservation programmes. New processes and cleaner technologies are investigated and used whenever possible. Waste avoidance and reduction and waste recycling initiatives are vigorously pursued and implemented. Raw materials are sourced from suppliers who share our commitment to environmental responsibility, and policies, objectives and targets are set to continuously ensure that the products we manufacture will not compromise nor, as far as is practical, damage the environment.

We aim to achieve the highest standards of environmental performance for all our stakeholders and to adhere to the principle of responsible care and continuous improvement in our business. **tretford®**'s environmental performance has proven to be exemplary. It is our committed intention to keep it that way.

We are happy to communicate openly regarding environmental issues relevant to our business and would welcome any feedback or queries.

Yours sincerely,

Noel Cunningham
Managing Director
Waterford Carpets Ltd.

Rudolph Welcker
Managing Director
Weseler Teppich GmbH & Co. Ltd.

Environmental Policy Statement

tretford[®] is committed to pollution prevention and environmental protection. We aim to achieve the highest standards of environmental performance in the interest of all our stakeholders: - employees, suppliers, customers, and also the local society in which we operate and the global society from which we draw our raw materials and into which we sell our products.

We are committed to complying with all environmental legislation and regulations that may apply to the industry and we will make every effort to comply with the requirements of our Integrated Pollution Control License Reg. No. 510. We will adhere to the principles of responsible care and we strive for continuous improvement in its implementation.

Raw materials are sourced from suppliers who share our commitment to environmental responsibility.

We have prepared and implement an Environmental Management System to continuously ensure that the products which we manufacture will not compromise nor damage the environment.

Our Environmental Management System and Environmental Aspects Register are reviewed annually and environmental objectives and targets are set accordingly in order to promote continual improvement.

We will examine and evaluate the environmental implications of any processes and products and cleaner technologies will be investigated and utilised where possible. We will encourage and actively pursue waste avoidance, reduction, re-use and recycling in the activities of the company and throughout the life cycle of our products.

We will continuously examine, evaluate and review energy usage in our manufacturing process and implement an energy conservation programme. We will ensure that adequate operational procedures and emergency plans are implemented and reviewed on an on-going basis. We will ensure that our employees receive adequate training in relation to our environmental policies and procedures and we will review these training needs as may be required.

We are committed to continuous improvement of our Environmental Management System and we will ensure that it shall be integrated at all levels within our organisation. We will strive for ever-improving environmental performance and we will strive to protect the environment for our employees, neighbours and all our other stakeholders.

We will adhere to the principal of responsible care and continuous improvement in our business.

Raw Materials - Eco-Preferred Content

tretford® is made from carefully selected, predominantly natural raw materials which are sourced from well managed and sustainable sources.

The principal component in **tretford**® is **Goat Hair** which constitutes 80% of the product's fibre content. The goat hair, a by-product of goat farming for the cashmere industry, is sourced in Inner Mongolia where the goats are farmed in large quantities. The goat hair represents pre-consumer recycled content as the hair would normally be discarded being too coarse to be used for cashmere cloth. The hair is incredibly durable and hard wearing yet feels surprisingly soft to touch and is inherently anti-static. The hair is clipped, hand picked and sorted and then washed in a solution of mild soap. No chemicals are used and the waste water created is used to irrigate local farmland.

Three colours in the palette are made using undyed goat hair. To obtain the balance of the colours, the hair is then dyed in Belgium and shipped to the **tretford**® factory in Waterford, Ireland. **tretford**® uses dyes none of which contain heavy metals and all of which are non toxic. All of the chemical constituents of the dyes are biodegradable and there is effectively zero dirty water discharge in this process. This is in part due to goat hairs excellent dye take up of 98%, meaning that the very small amount of dye remains. It can be and is easily retrieved and re-used. This compares for example with cotton which has a dye take up of only 50-60%.

Nylon makes up 15% of **tretford**®'s face fibre content and is added to aid performance and ensure longevity of the carpet. Nylon is sourced from Germany where the highest environmental standards prevail.

Jute is used as the backing cloth for **tretford**® carpet. The jute, a renewable resource is harvested in Bangladesh and produced into woven cloth. It is used un-dyed. Jute possesses excellent, natural, fire retardant properties and as such does not require the additional treatments of synthetic backing alternatives. Synthetic carpet backings can also cause damage to walls during installation with the need for re-painting in some cases. This is not the case with **tretford**® as its jute backing is soft and pliable and will not scratch or mark wall surfaces.

tretford® is manufactured using a unique **PVC** fusion-bonding process. PVC bonding requires no water and so produces zero waste water effluent unlike other types of water-based bonding processes. This is one of the lesser known benefits of using a PVC bonding agent. The PVC used contains the highest quality plasticizers including DEHP and DINP and we strictly regulate the stabilizer content in accordance with EU guidelines. Only ingredients from the **EU Positive List** are used. DAP is not used. This pure PVC is non-carcinogenic, non-oestrogenic and is also non-bioaccumulative and virtually no dioxins are produced during its manufacture. It is completely inert and can be safely disposed via landfill or recovered via incineration at the end of its life.

All raw materials are sourced from suppliers who share our commitment to environmental responsibility. Our suppliers are regulated where required by their local environmental authorities.

As a percentage of total product weight, **tretford**®'s eco-preferred content is comfortably in excess of 50%*. (*Exact figures are not quoted for commercial reasons.)

Manufacturing – Environmental Management System

Waterford Carpets Ltd., **tretford**®'s manufacturing facility is **environmentally certified** and is licensed by the Irish Environmental Protection Agency; license no. 510. It operates to rigorous environmental regulations, is routinely monitored and audited and is fully compliant.

ENVIRONMENTAL MANAGEMENT SYSTEM

We have had an Environmental Management System in place and operational since March 2002.

- Emissions – the gas, liquid and particulate emissions: There are no detectable emissions from the manufacturing process.
- Waste disposal – the waste disposal and recycling rates of all waste (It should be noted that no waste water is produced during the production of **tretford**® cord carpet).
- Material minimisation– all product material inputs – including packaging.
- Energy reduction - the energy consumption which may be generated from the product manufacturing process are measured recorded & reported. Waterford Carpets monitor sections of the manufacturing process daily, weekly and monthly as part of our Environmental Management System. These records are submitted to the EPA (Environmental Protection Agency) annually. In addition the EPA conduct a minimum of two factory visits per annum (to test emissions and for a full annual audit).

tretford® is an **energy efficient** product. The energy cost of producing one unit of goat hair is fractional when compared with the energy cost of producing one unit of synthetic fibre. Nor do we bleach our goat hair prior to dyeing. In fact some of our carpet colours are the natural colours from the goat which are used and/or blended, undyed.

We continue to constantly examine and evaluate how to improve our manufacturing process to **effect energy conservation**. Examples of implemented strategies to maximise energy efficiencies are the cleaning and scouring of the goat hair in China before being shipped to reduce freight costs, i.e. we ship only clean input raw material.

In addition our goat hair is sorted by hand which reduces our total consumption of carbon-based fuels, leading to further energy efficiencies.

The water used at the goat hair cleaning plant is from groundwater and rain water supplies. The waste water at the end of the process is used to irrigate local farmland. This is feasible since the water has a low COD (Chemical Oxygen Demand); goat hair has a very low lanolin content compared with wool.

Similarly 90% of the water used in the dyeing process is from a local ground water supply and a further 10% is from a recycled water supply. Following the dyeing process the waste water is recycled off-site by a recycling company. The recycling company is licensed to discharge the recycled water to a local canal.



tretford®'s unique PVC fusion bonding manufacturing process uses no water and so produces zero waste water effluent.

On-going initiatives to achieve excellence in Quality Control ensure that there is minimal post industrial waste. Of the waste produced, carpet cut-offs are used for sampling and jute is used for wrapping rolls.

Our policies, objectives and targets are continually monitored and set to consistently ensure that the product that we manufacture will not compromise nor, as far as is practically possible, damage the environment.



EMS Manual – TABLE OF CONTENTS – see following:

Waterford Carpets Environmental Management System Manual

TABLE OF CONTENTS

1.0	PURPOSE	1
2.0	SCOPE	1
3.0	ISSUE AND UPDATE	1
4.0	ENVIRONMENTAL POLICY	2
5.0	ENVIRONMENTAL ASPECTS	2
6.0	LEGAL AND OTHER REQUIREMENTS	2
7.0	ENVIRONMENTAL OBJECTIVES AND TARGETS	3
8.0	ENVIRONMENTAL MANAGEMENT PROGRAMMES	3
9.0	ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES	4
10.0	TRAINING AND AWARENESS	4
11.0	COMMUNICATION	5
12.0	ENVIRONMENTAL MANAGEMENT SYSTEM DOCUMENTATION ...	5
13.0	DOCUMENT CONTROL	5
14.0	OPERATIONAL CONTROL	5
15.0	EMERGENCY PREPAREDNESS AND RESPONSE	6
16.0	MONITORING AND MEASUREMENT	6
17.0	NONCONFORMANCE, CORRECTION AND PREVENTION	7
18.0	RECORDS	7
19.0	ENVIRONMENTAL MANAGEMENT SYSTEM AUDIT	7
20.0	MANAGEMENT REVIEW	8
21.0	RECORD OF REVISIONS	8

Installation – Designed For Disassembly

There are distinct and positive energy savings in the use of **tretford**[®] over other forms of carpet/carpet tile at the installation stage.

The pliable nature of the product results in easier handling/installation and its soft flexible backing reduces risk of damage to other materials at point of installation reducing the likely need for repair/rework.

US studies have shown that over 60% of installed carpet failures occur due to poor installation and that the greatest number of these failures occurs at the seams, i.e. seam breakdown. **tretford**[®]'s non-ravel properties mean that this cannot happen with **tretford**[®].

Its 2 metre width (compared with standard 3.66m or 4m broadloom) results in much lower wastage than broadloom and is significantly easier to transport and move around site, not requiring any specialist lifting (cranes) or transport equipment on site. It can be moved easily up stairways and in elevators. Its non-ravel properties, random seam matching properties and the ability to invisibly butt join/cross join the carpet significantly reduces wastage during installation.

In line with the latest work-place requirements we support the use of solvent-free adhesives with low VOC emissions. We also promote the direct-stick installation method to ensure the longest in-service life possible. While some promote the use of more easily removed modular/tile carpeting formats, we see significant downsides to doing so. Tile backings, which are generally oil or polymer-based and as such non-renewable, add up to 100% to total finished product weight and also increase the quantity of raw materials required in their manufacture by up to 100%. They have no significant or positive impact on product performance.

An installation of **tretford**[®] carpet can be easily "disassembled without the use of specialist tools and equipment" if installed using a release adhesive. This is possible because no seam sealer is required when fitting **tretford**[®] carpet and so uplifted pieces can be easily separated from one another into their original 2m wide sections. However, where a permanent bond adhesive is used, the carpet will be damaged during removal, removal will be more difficult (it will require greater manual effort) and it will not be possible to reuse the carpet.

However, **tretford**[®] carpet has a unique construction which means that it can be cut in any direction without fraying. As a result of this it is possible to cut a damaged piece of **tretford**[®] from an installation and replace it with another piece without the need for seam sealer. Wastage is therefore minimised as complete areas do not need to be replaced. If the fitting is done to a high standard, the seams will not be overly visible.

Please be aware that as with the replacement of all carpet (or carpet tiles), a total shade match cannot be guaranteed due to a potential change in appearance of the previously installed carpet (or carpet tiles), e.g. under traffic loading, or because a different dye batch is used.

Note: For environmental reasons, only when regular access is required to the sub-floor, do we promote **tretford**[®] in tile format.

In-Service - Durability

tretford[®]'s goat hair is one of the **toughest natural carpet fibres** available resulting in a product which has a longer life. The highest quality PVC bonding agents used in **tretford**[®] also mean no flaking, rotting, warping or peeling. Longer life means less frequent replacement which is better for environment. **tretford**[®] is extremely hard wearing and, over the past 40 years, has become synonymous with incredible durability in even the most demanding commercial environments.

tretford[®]'s unique construction and the rigorous **quality control** applied during manufacture also ensure one of the lowest industry service failure rates. This reduces the incidence of failure requiring replacement to a level far below the industry average.

tretford[®] carpet can be **easily repaired** if damaged without causing fraying and losing the appearance of the carpet. Small sections can simply be cut out and a replacement inserted.

And each of **tretford**[®]'s 48 colours is given a star-rating based on their **soil hiding characteristics**. 3-star colours are suitable for heavy soiling areas, 2-star for medium soiling and 1-star for low soil environments. This helps specifiers and end-users make the correct colour choice in the first instance.

The realistic **service life** of **tretford**[®] carpet is:

- 15-20 years for residential applications
- 7-12 years for commercial applications

However lack of a regular and **effective maintenance programme** and the lack of appropriate entrance matting negatively affect the service life of the carpet.

We assume responsibility for the constant evaluation (and re-evaluation) and promotion of the latest, most effective and most environmental-friendly, end-user maintenance systems. Currently, we recommend that **tretford**[®] be cleaned with a **dry or low moisture cleaning system** such as Host[®]. Low moisture systems are suitable for both periodic and deep cleaning and are guaranteed not to promote mould or mildew growth.

The Host[®] system is safe and non-hazardous; virtually no VOCs are emitted from the organic **biodegradable cleaning compounds**. Cleaning with this system allows users to return to their carpeted room immediately. Wet/steam cleaning is also an acceptable method of cleaning provided it is done properly. However it does not offer the same environmental benefits as the dry/low moisture cleaning systems in terms of water usage. A low moisture cleaning system uses water at a rate of less than 1ml/m² e.g. If as recommended a carpet is cleaned every six months over its 10 year life, therefore less than 20ml/m² of water would be used over its entire lifetime on maintenance.

Goat hair is a **natural insulator** which means energy savings. It has excellent **acoustical** properties further improving the in-door air environment. And, of course, breathable natural fibres are now proven to positively affect **in-door air quality**. In-service carpet VOC's (in-door air quality indicators) have been routinely tested and results are **below detectable limits**. As mentioned previously, the recommended adhesive and maintenance chemicals also result in very low VOC's.

In addition, **tretford**[®] carries a life-time warranty against edge ravel and fraying which guarantees that seams will never breakdown.

tretford[®] carries a standard 5yr wear warranty but this can be extended to 7yrs, 10yrs or even 15yrs on request, subject to the colours chosen and the characteristics of the individual installation/project for which it has been specified. As a general guide, 3 star colours offer the best soil hiding and appearance retention characteristics and will generally qualify for longer wear warranties.

Please note that in offering our warranties, Tretford uniquely takes appearance retention into account. Typical warranties consider only percentage fibre weight loss over time so it is possible for a product that has been warranted for up to 15 years to require replacement after as little as 6 months due to the unacceptable state of the carpet's appearance.

APPENDED – SAMPLE PROJECT-SPECIFIC WEAR WARRANTY (> 7 yrs and < 15 yrs)

Post Consumer

While **tretford**[®] is 95% non-reusable it can be used as **underlay**. In addition, **tretford**[®] 's high calorific content makes it suitable for use in **energy recovery** via incineration. **tretford**[®] contains no toxic or proscribed constituents that limit its safe disposal.

A supplier take-back option is not currently available. Carpet recyclability offers potential but for the moment, guarantees very little; only a small percentage of post-consumer carpet globally can be and is being recycled energy efficiently. While commitment to producing recyclable products is essential without its associated recovery infrastructure it is fruitless – both should be pursued in tandem.

Post-industrial jute can be used for wrapping the rolls.



Modularity

tretford® cord carpet is available in both sheet (2m wide rolls) and tile (50cm x 50cm) formats. Both formats offer the perceived advantages of modularity:

1. Both formats are easily transported and require no specialist lifting or transportation equipment, e.g. cranes, in transit or on site.
2. Both formats are easily man-handled during installation, reducing incidental damage to other finishes and therefore the need for rework.
3. Both formats are easily installed and wastage is low (generally less than 5%) when compared with traditional broadloom.
4. Both formats allow easy replacement of damaged, stained or worn areas without the need to replace the entire installation. In the case of **tretford®** sheet, this is possible because its construction allows it to be cut without fraying and certainly discreet sections no greater than 1m² can be replaced without affecting the visual integrity of the flooring any more than a tile replacement would (when taking into account that any new piece inserted into an existing used floor will always be more obvious) and without affecting adjacent **tretford®** or other floorcovering.

Where **tretford®** is not being fitted over raised access flooring, additional environmental benefits are realised if **tretford®** sheet is installed rather than tile.

1. **tretford®** sheet weighs almost 50% less than **tretford®** tile. This means approx 50% less raw materials need be sourced and transported to the manufacturing plant, approx 50% less raw materials need to be processed and approx 50% less finished product (by weight) needs to be transported from the manufacturing plant to the installation site.
2. It should be noted that up to 20% more **tretford®** sheet can be fitted in a container than tiles reducing energy consumed in transport by almost the same amount. This is because (a) the weight of tiles (almost all tiles, not just **tretford®**) mean container weight limits are hit before a container is full and (b) 2m wide **tretford®** can be stood on end leaving minimal vacant space in a container.

The majority of the additional material used in the manufacture of tile (again, any tile) over broadloom is petroleum-based (whether PVC or otherwise, whether recycled or virgin). Unless a tile format is required to allow access to a subfloor, there is no need to apply this secondary tile backing; **tretford®** sheet can and, we would respectfully suggest, should be used instead. **tretford®** can be cut & assembled in regular standard dimensional pieces should that be the requirement for the project – however the two metre wide broadloom nature of the product minimizes dramatically any issues of wastage.

