



## *Engineered Specialty & Technical Leathers*



The **eXo-derm** range of engineered leathers represent a new generation of leathers for use in performance sports, civilian services (police, security) and Military gloving applications.

Manufactured using state-of-the-art leather chemistry and manufacturing techniques, **eXo-derm** leathers are engineered to offer superior performance while allowing exceptional dexterity, flexibility and sense of touch. The natural softness of these high-performance gloving leathers has been maintained through the application of a specialized tannage that ensures breathability and superior grip.

**eXo-derm** leathers have improved ability to resist moisture generated by rain, humidity or working conditions. They offer protection in all weathers and have been engineered to prevent the absorption of moisture and sweat, protecting the fiber structure from the detrimental effects of perspiration, ensuring that **eXo-derm** leathers remain soft and supple even after prolonged use and repeated exposure. The leathers are made in various technical specifications suitable for sporting, industrial and tactical gloving applications.

**Engineered features of the eXo-derm range include:**

- **High strength**
- **Perspiration resistance**
- **High abrasion resistance**
- **Enhanced grip**
- **Water resistance**
- **Colourfastness**
- **Anti-microbial properties**
- **IR management**

For further information please contact Jon Hopper ([jon.hopper@tatainternational.com](mailto:jon.hopper@tatainternational.com)).

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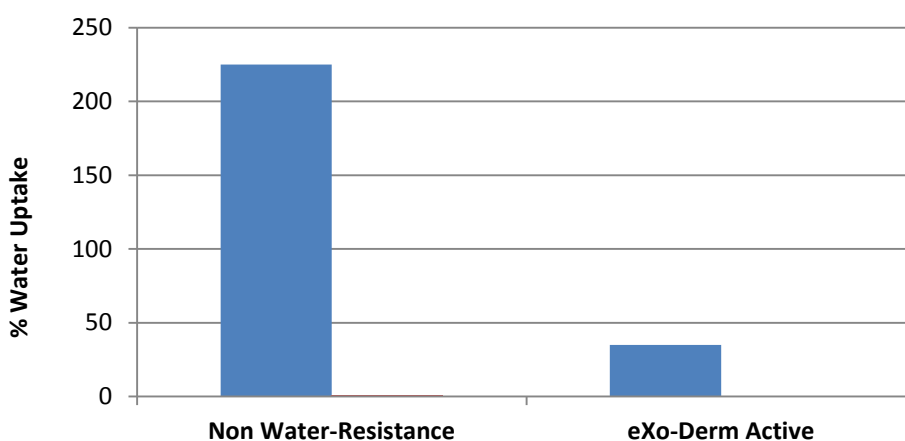
## **Water Resistance**

***eXo-derm Active** gloving leathers have been engineered with a permanent water repellence technology based upon hi-tech polymers. The treatment will resist the action of wetting both in dynamic and static conditions. This gives **eXo-derm Active** gloving leathers enhanced moisture management properties and complete breathability, ensuing optimized wearer comfort in both hot and cool conditions.*

*The water-resistant technology applied to **eXo-derm Active** leathers prevents the leather from becoming slippery when wet, enhancing grip levels and improving abrasion resistance. **eXo-derm Active** leathers dry faster if ultimately it becomes wet, retaining its softness and original shape.*

*The substantive nature of the applied technology means that **eXo-derm Active** leathers are machine washable using low temperature delicate wash cycles and suitable mild detergents*

**Comparative Average % Water Uptake After 60 Minutes**



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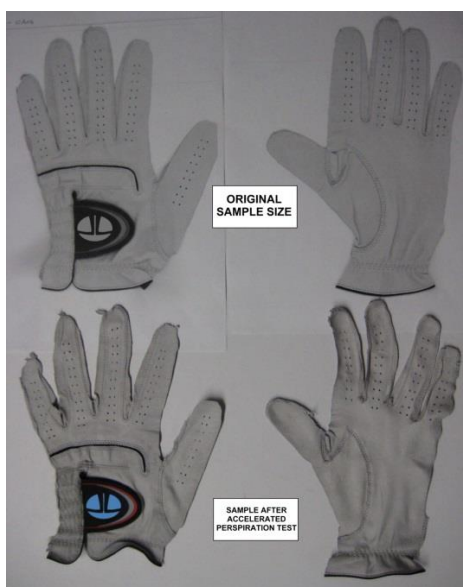
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## **exo-derm<sup>TM</sup> Active**

### **Perspiration (Sweat Resistance)**

*The human hand generates a large amount of perspiration, especially in hot weather and high adrenalin situations. Most gloving leathers have a low ability to withstand the damaging action perspiration can have on the tannage, where the Lactic Acid component of perspiration cleaves the tanning bond in the leather, resulting in de-tannage. Ultimately perspiration exposure will lead to leather becoming hard, damaged and darker in colour. It will also reduce the strength of the leather.*

***eXo-derm Active** leathers have been treated with a special secondary tannage, permanently incorporated into the leather fiber matrix to resist degradation due to perspiration. This prolongs the life of the glove, ensuring its performance and appearance remains almost unchanged.*



### **Colourfastness**

*Colourfastness is critical in the gloving market. Traditional dyeing technologies used in leather manufacture do not yield the performance required for high performance colour fastness, particularly to perspiration. This is primarily due to the poor bond strengths between the dyestuff molecules and the leather when subjected to the high pH conditions as produced by human perspiration. This reaction causes the bond to be broken allowing the dye to bleed.*

*Through application of innovative technology, Tata International is able to achieve an ultra-strong bond between the dyestuff and the leather, and thus offer exceptionally higher colour fastness value.*

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**Specifications & Typical Results**

Test	Method	UOM	Minimum Specification	<i>eXo-derm Active</i> Typical Results	
				SG 1000 0.7mm	GG2000 0.7mm
Tear Strength Horizontal	ISO 3377:2002	kg	> 1.5	4	5
Tear Strength Vertical	P-2	kg	> 1.5	4	5
Static Water Uptake (after 20 min)	BS3449	%	< 25	25	25
Static Water Uptake (after 60 min)	BS3449	%	< 40	35	38
Color Migration to Water (grain)	ISO 11641 : 1993	Grey Scale	> 4	5	5
Color Migration to Water (flesh)		Grey Scale	> 4	4.5	4.5
Color Fastness to Crock Meter Grain (dry)	SATRA TM 167	Grey Scale	> 2	3	3
Color Fastness to Crock Meter Flesh (dry)		Grey Scale	> 2	3.5	3.5
Color Fastness to Crock Meter Grain (wet)		Grey Scale	4.5	4.5	4.5
Color Fastness to Crock Meter Flesh (wet)		Grey Scale	4.5	4.5	4.5
Color Migration to Perspiration (grain)	ISO 11642 : 1993	Grey Scale	> 2.5	5	5
Color Migration to Perspiration (flesh)		Grey Scale	> 2.5	4	4
Marking Off	TM : 36	Grey Scale	> 4.5	5	4.5
Lactate Testing	24 hrs @ 50°C	TM 23	4	No Shrinkage Dry Soft: 5	
	48 hrs @ 50°C	TM 23	4		

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