

**Title:** Guide to Selection of Slip-Resistant Industrial Floor Finishes



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**Page:** 1 of 4

## 1. Introduction

John L. Lord & Son Ltd are committed to providing resin based industrial floor finishes that meet Health and Safety Executive (HSE) guidelines on slip resistance. The following report offers advice regarding specification for both Epigard and Uragard product ranges in relation to their slip resistance.

## 2. Slip Resistance

Extensive testing has been conducted by John Lord in collaboration with the Health and Safety Laboratory (HSL), to identify and address the importance of offering slip-resistant, resin-based industrial floor finishes, which can perform in wet and dry conditions. Measurements of the Pendulum Test Value (PTV), closely related to the co-efficient of friction, were made using a calibrated Stanley Pendulum instrument. This instrument can be used in conjunction with two different test sliders. Slider 96 Rubber, also known as Four-S Rubber (Standard Simulated Shoe Sole) has been developed to represent a footwear material of moderate slip resistance. Slider 55 Rubber is constructed of a softer material that is used on unusually rough surfaces.

Measurements of surface roughness were also taken using a calibrated surface roughness transducer, set to the Rz parameter.

The HSL undertook site visits to assess slip resistance using the standard HSL/HSE techniques, mentioned above, in accordance with 'The UK Slip Resistance Group Guidelines'.

Data generated from these assessments provided John Lord with comprehensive information that has been utilised to offer our customers the best possible slip resistance solutions for their industrial flooring requirements (*Table 1*).

**Table 1: Surface Roughness / Pendulum Test Values Data**

Product	Surface Roughness ( $\mu\text{m}$ )	Pendulum Test Values	
		Dry	Wet
Uragard HT A/S	33.2	91.0	59
Uragard HT 62W	22.4	77.0	49.0
Uragard HT 120W	18.6	60.0	34.0
Uragard HT 120W (Back Rolled)	19.3	67.0	37.0
Uragard MT	8.0	72.3	26.0
Uragard HT 110W	27.7	108.7	32.0
Uragard HT 110W	19.7	115.3	25.0

+ MB12 (1 coat)			
Uragard HT 110W + SC2 (1 coat)	26.0	99.0	26.3
Epigard Gripcast	37.5	98.0	74.7

The data quoted in Table 1 is taken from HSL reports PS/02/01 and PE/00/08, undertaken in June 2000 and June 2002, and is expressed as an indicative guideline only which are regarded as optimum conditions for mixing and application of products. The slip resistance values in Table 1 relate only to dry and water wet conditions. Values may vary when products are laid dependant upon atmospheric conditions, temperature and type of substrate.

The information presented below has been adapted from 'The Assessment of Floor Slip Resistance: The UK Slip Resistance Group Guidelines', Issue 3, 2005 and is intended as a guide (*Table 2*). Other factors, such as level and type of pedestrian activity and user demographic (such as age and physical ability) should be considered. A risk assessment should be conducted in all situations.

**Table 2: Slip Potential Information**

Surface Roughness (µm)	Water Wet Slip Potential	Pendulum Test Value	Slip Potential
<10	High	0 – 24	High
10 – 20	Moderate	25 – 35	Moderate
>20	Low	>36	Low

Note that, according to the HSE Publication Guidance for the Food Processing Industry HS(G)156, floors having a maximum peak-to-trough distance of less than 10µm, have been shown to be hazardous in wet conditions.

The following recommendations have been derived from the above information that may be used as a guide in finding a suitable industrial floor finish from the John Lords product range for specific industrial environments (*Table 3, Table 4*). These recommendations are not exhaustive and are for guidance purposes only. It is recognised that technical expertise and customer communication play a vital role in final product specification to meet each organisations' individual requirements, and that the installation of the correct floor is fit for the purpose intended.

**Table 3: Industrial Floor Finish Recommendations – Environment Specific**

Product	Environment				
	Wet Processing (Production)	Dry processing (Packing & Production)	Hot Temperature (Production)	Cold Temperature (Production & Storage)	Heavy Duty Trafficking
Uragard HT A/S	●		●	●	●
Uragard HT 62W	●		●	●	●
Uragard HT 120W	●		●	●	●
Uragard HT 120W (Back Rolled)		●	●	●	●
Uragard MT		●			
Uragard MT(F)		●			

Uragard SL		•			
Uragard HT 110W		•	•	•	•
Uragard HT 110W + MB12 (1 coat)		•	•	•	•
Uragard HT 110W + SC2 (1 coat)		•	•	•	•
Epigard Gripcast	•				

**Table 4: Industrial Floor Finish Recommendations**  
**– Food Processing Environment Specific**

	Uragard HT A/S (> 9mm)	Uragard HT 62W (> 6mm)	Uragard HT 120W	Uragard HT 120W (Back Rolled)	Uragard MT	Uragard MT(F)	Uragard SL	Uragard HT 110W	Uragard HT 110W + MB12 (1 coat)	Uragard HT 110W + SC2 (1 coat)	Uragard Decorative Quartz	Epigard Gripcast	Uragard WR Cove Grade
Brewing bottling plants	•	•	•	•								•	•
Brewery cask wash	•												•
Brewery fermenting rooms	•	•	•	•									•
Cheese preparation	•	•	•										•
Chillers (wet)	•	•	•	•									•
Confectionary manufacture (wet)	•	•	•								•		•
Convenience food manufacture	•	•	•	•				•			•		•
Dough / pastry preparation	•	•	•					•					•
Dry beverage manufacture				•	•			•		•			•
Finished goods store		•	•	•	•		•	•	•	•	•	•	•
Fruit / vegetable preparation	•	•	•								•	•	•
Frying rooms	•	•	•						•	•			•
Loading bays (fork lift trucks)	•	•	•	•									•
Meat / dough preparation suites (nylon wheels)	•	•	•										•
Meat / dough preparation suites (steel wheels)	•	•											•

Meat / fish / poultry processing	•	•												•
Meat packing (wet)	•	•												•
Milk processing	•	•	•								•			•
Oven cooking areas (dry)				•	•			•	•	•				•
Oven cooking areas (wet)	•	•	•											•
Pharmaceutical manufacture		•	•	•	•	•	•	•			•	•	•	•
Pickling rooms	•	•	•											•
Powdered beverage packing				•	•	•		•	•	•		•	•	•



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