



FINDLAY IRVINE

Skid Resistance

What is it

Thursday 23<sup>rd</sup> September 2010





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# Scottish Based Engineering Company World Wide Market

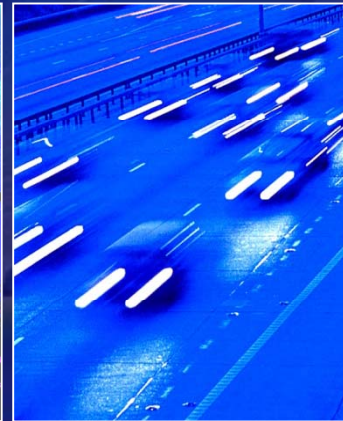




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What do we do ?





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# Skid Resistance

- Why is it important ?
- What is it ?
- What is it not ?
- How do you measure it ?





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# Skid Resistance

- Why is it important ?





# Skid Resistance

Why is it important - safety?

- Stopping Distances  
(Highway code)

50 mph

in Dry

in Wet



x 13

x 26

Assumes  
car in good condition  
road in good condition





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# Skid Resistance

**Why is it important ? - safety**

- Public will assume roads provide expected stopping distances  
I.e skidding resistance

**Do they ?**

**What happens if they don't ?**

**Should public be told ?**

**How should public be told ?**





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# Skid Resistance

Why is it important ? - safety

- We regularly measure roads in UK



Investigatory Level 0.45 - 0.55

SMA Surface – Early Life Skid Resistance

0.51      now

0.37      several weeks

0.17      for a couple of weeks

<0.1 is ice

**The authority did not know!!**





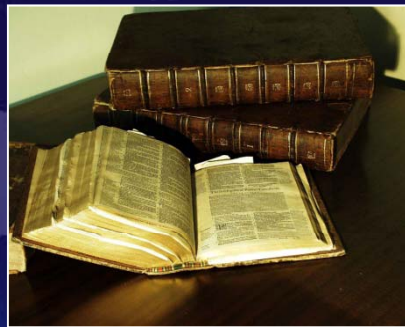


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# Skid Resistance

Why is it important ? – Asset Condition

## DMRB – HD28



1.4 In this Standard the provision of appropriate levels of skid resistance is treated primarily as an asset management issue rather than one of road safety engineering





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# Skid Resistance

## Why is it important ? – Asset Condition

- Asset Condition
  - Important condition index
  - Helps prioritise schemes
  - Ensures resource are used effectively
  - Easily understood – its slippery
  - Simple to use





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# Skid Resistance

## Why is it important ?

- National Guidelines

Authorities should endeavour to ensure that appropriate skid resistance is provided across the whole network, both for safety reasons in respect of skidding and to provide a defence in cases of litigation.

( Code of Practice for Maintenance Management published by the Institution of Highways & Transportation)





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# Skid Resistance

- What is it ?
  - Resistance to Skidding



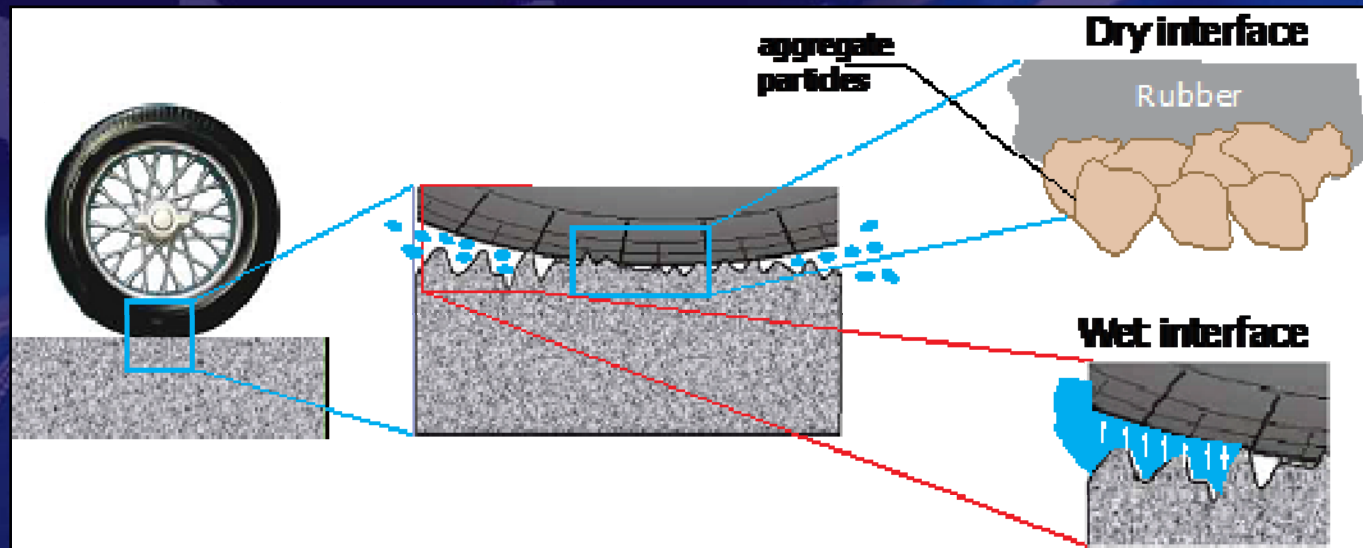


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# Skid Resistance

## What is it ?

It's an interaction between tyre and surface  
It's an effect  
It complicated



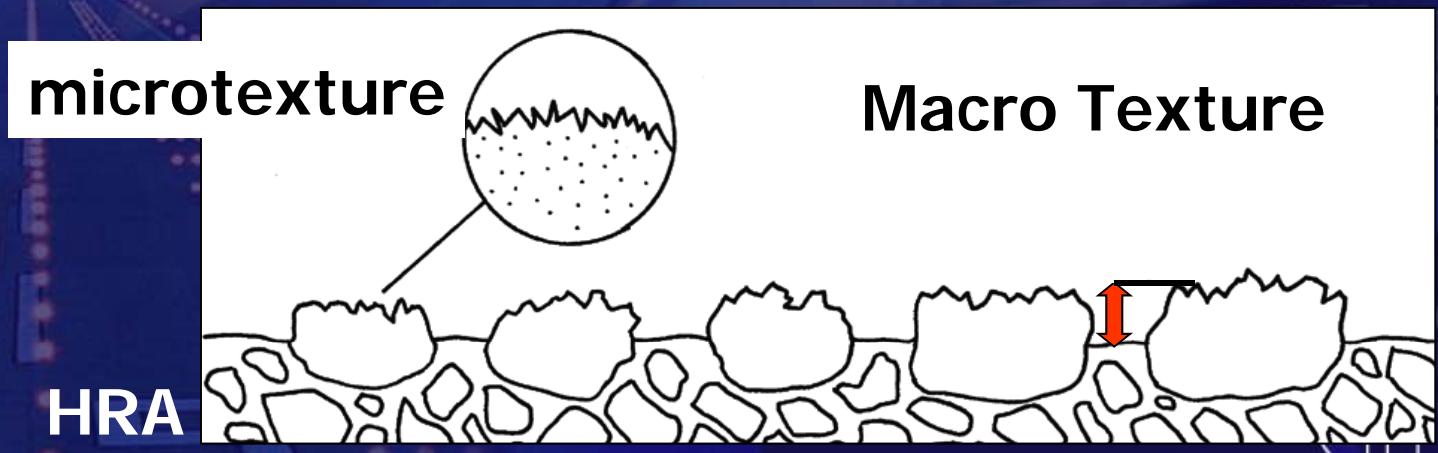
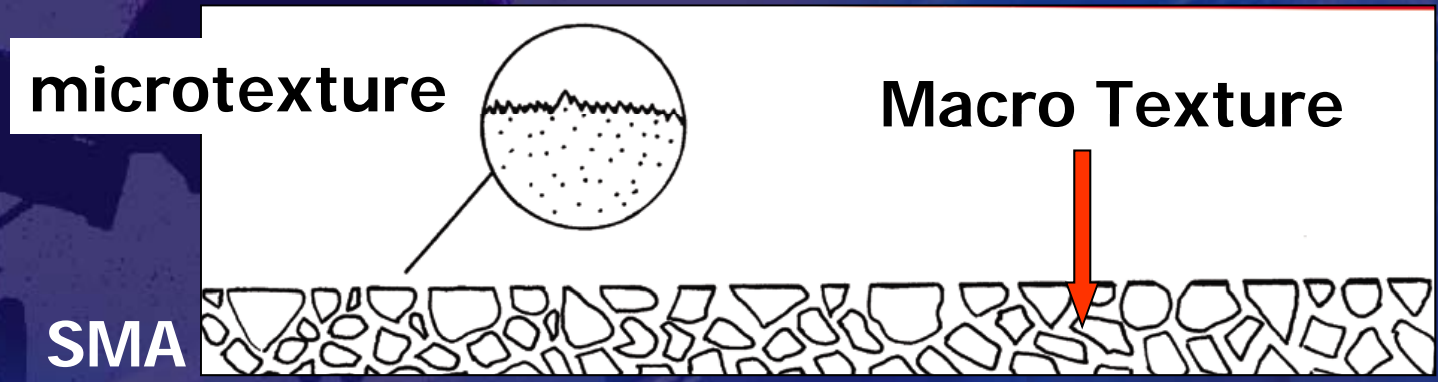


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# Skid Resistance

What is it ?

Micro and Macro Texture



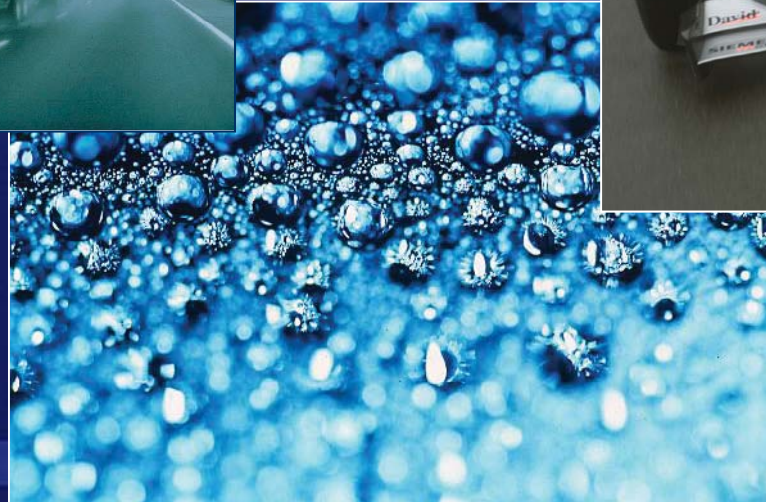


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# Skid Resistance

What is it ?

## Macro Texture



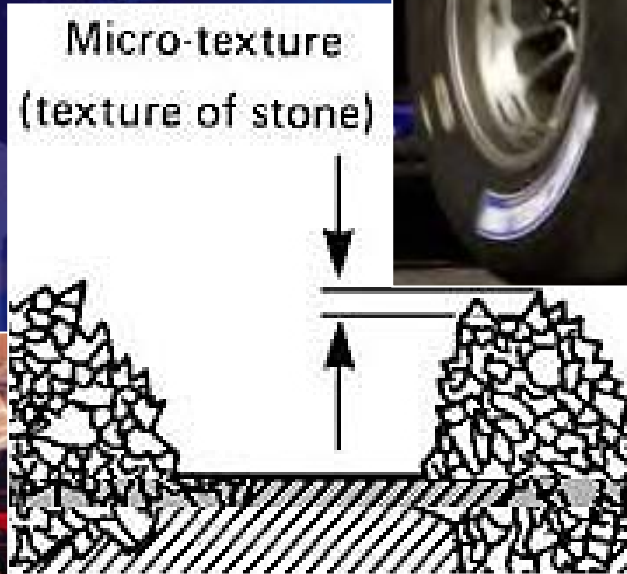


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# Skid Resistance

What is it ?

## Micro Texture







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# Skid Resistance

## What is it ?

Its not a constant

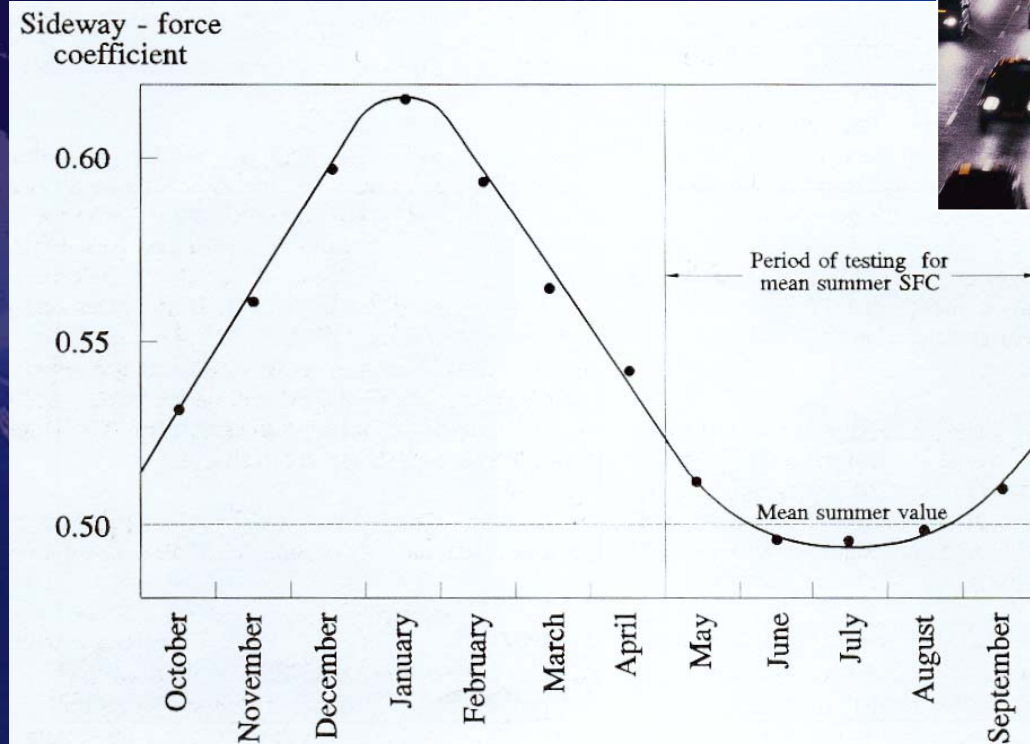
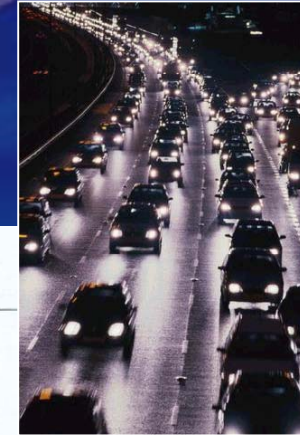


FIGURE 3.3 Example of the Seasonal Variation of SFC





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# Skid Resistance

- What is it Not ?





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# Skid Resistance

What is it Not?

Its not PSV



Quality of Aggregate





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# Skid Resistance

**What is it Not?**

**Polished Stone Value**

**Is a measure of wear resistance**

**Not skid resistance**

The type of aggregate does contribute to skid resistance

Micro Texture

Macro texture





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# Skid Resistance

## What is it Not?



**Texture Depth**

**Macro Texture Only**

**Skid Resistance is determined by**

**a combination of micro and macro texture, the contribution of each factor varies with speed. 50kph**

**Higher speeds Macro Higher effect**

**Lower speeds Micro Higher effect**

**High Friction Surface**

**Low Texture**

**High Friction**





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# Skid Resistance

- How do you measure it ?





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# Skid Resistance

How do you measure it?



Pendulum Site Investigation



SCRIM

Network Testing



GripTester Site Investigation  
Network Testing





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# Skid Resistance

How do you measure it?

$$\text{SCRIM (SC)} = 0.85 \times \text{GN}$$



$$= 0.85 \times$$



2010 Correlation ADEPT (CSS)







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# Skid Resistance

How do you measure it?



To ensure quality

Repeatability 0.03

Reproducibility 0.07

Robust \ Verifiable  
Transport Scotland





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# Skid Resistance

How do you measure it?



Grip Tester more suited to  
local authority networks

- Safer
- Measures more easily at roundabouts and junctions
- More deployable





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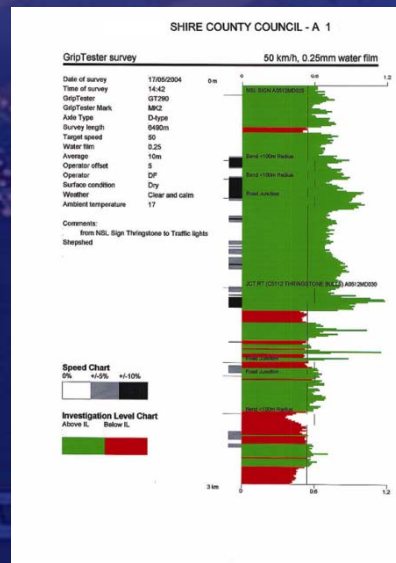
# Skid Resistance

## How do you measure it?

### Useable Data

### GIS Format reports

### HMDIF for PMS





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# Skid Resistance

How do you measure it?

## Micro GripTester A New Concept





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And finally...





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Thank you  
For  
listening

