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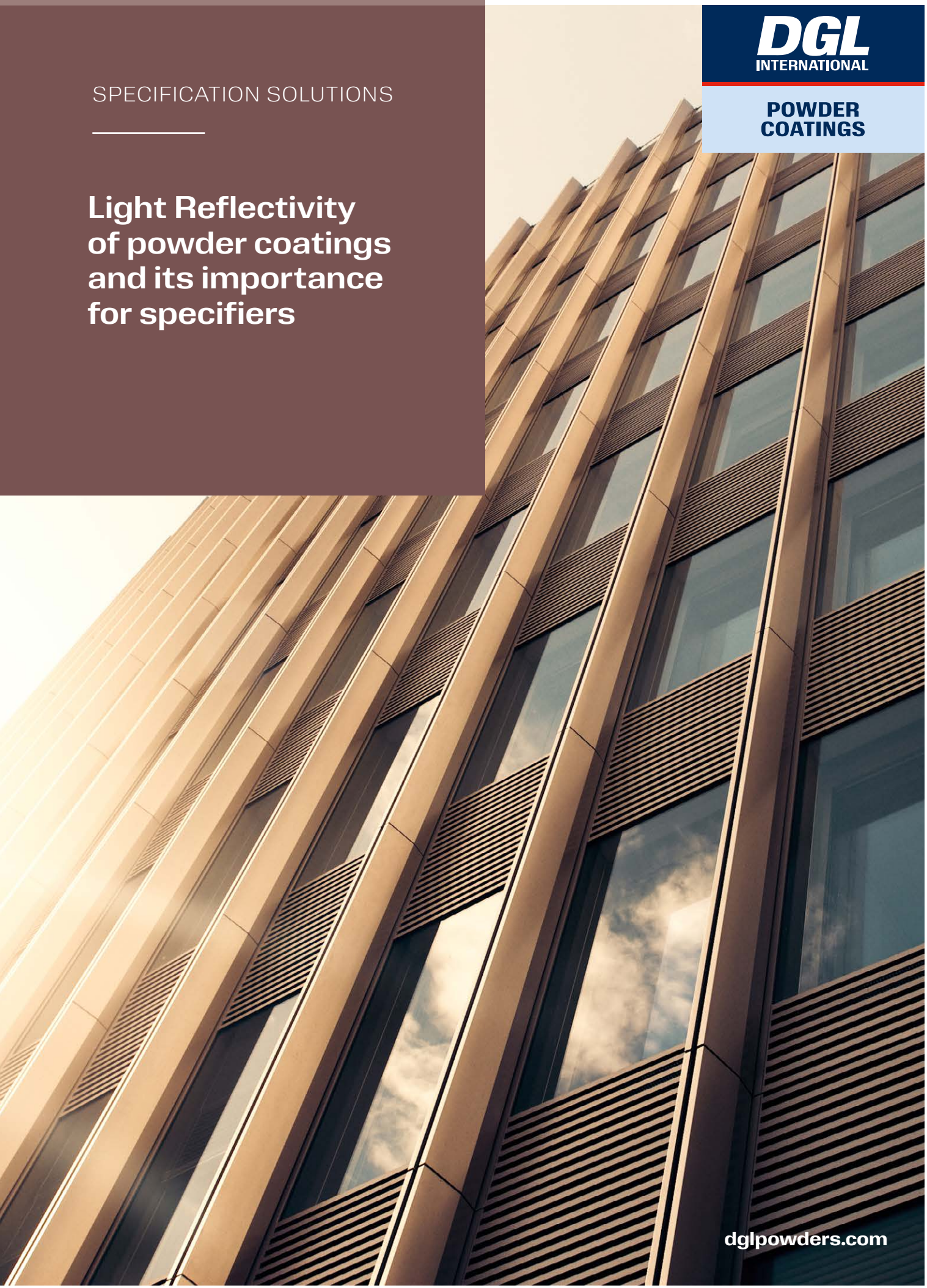
POWDER COATINGS

SPECIFICATION SOLUTIONS

Light Reflectivity of powder coatings and its importance for specifiers



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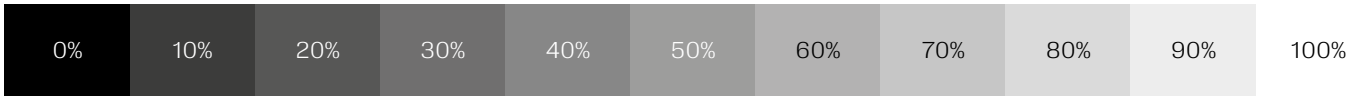
Light reflectivity is an important consideration for specifiers when choosing surface finishes for the built environment. Our perception of colour, overall aesthetics, glare, artificial lighting requirements and accessibility are all determined by the way surfaces reflect light.

This Specification Solutions document explains the difference between Light Reflectance Values (LRV), Specular Light Reflectivity and Diffuse Light Reflectivity and why they're important.

What is a Light Reflectance Value (LRV)?

A Light Reflectance Value represents the total amount of visible and useable light reflected from a surface. It combines both Specular and Diffuse Reflectivity. It is expressed as a percentage of total incoming light and is largely dependent on colour. Surfaces with higher light reflectance values appear lighter while surfaces with low light reflectance values appear darker. In theory, the blackest black would have an LRV of 0 and the whitest white would have an LRV of 100 however in reality most black colours have an LRV around 5 and highly reflective whites around 90.



Light Reflectance Value Scale (indicative only)

Within the built environment, LRVs over large surface areas and major fit-out materials can ultimately influence the amount of artificial lighting required for optimal visibility. LRVs are also significant when designing spaces where visual contrast is important to meet building codes and the needs of those visually impaired.

What is Specular Light Reflectance?

Specular Light Reflectance is the portion of incoming light that is reflected such that the reflected ray is at the same angle to the surface normal as the incoming ray. Specular light reflectance can also be described as a mirror reflection and is expressed as a percentage of total incoming light.

Glass, still water and highly polished metal surfaces will all have higher specular light reflectance values for example than non-glossy surfaces. Similarly, surfaces finished with a gloss or satin powder coating will produce higher specular light reflectance than surfaces finished with a matt or flat powder coating.

Specular Light Reflectance is significant in the context of architectural design as surfaces higher in specular reflectivity will concentrate the light that reflects from a surface in a more singular direction, which can result in glare. Surfaces with a lower specular reflection produce less glare as they scatter or absorb a greater portion of the incoming light.

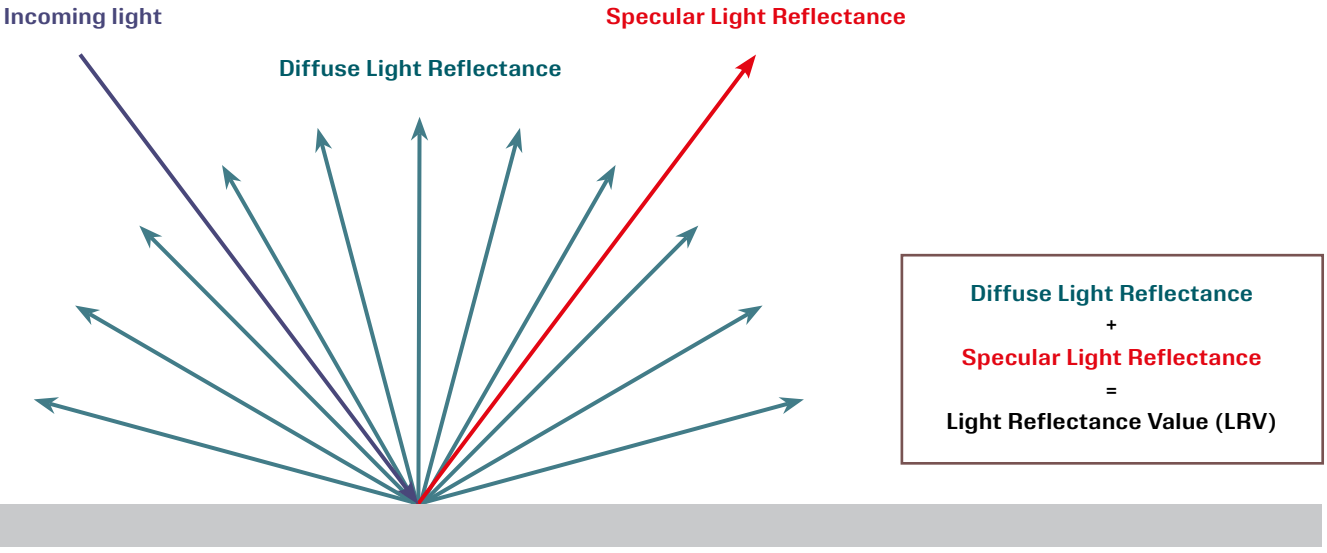
What is Diffuse Light Reflectance?

Diffuse Light Reflectance is the portion of incoming light that is reflected at angles other than the specular angle and is also expressed as a percentage of total incoming light. The incoming light is reflected or diffused in a range of directions caused in part by the surface roughness. Matt, flat and textured surface finishes will therefore produce higher levels of diffuse reflection and subsequently lower levels of specular light reflection.

The LRV, Specular Light and Diffuse Light Reflectance relationship

The reflection of light can be categorized as either diffuse or specular, so a Light Reflectance Value ultimately represents the combined sum of Diffuse Light Reflectance and Specular Light Reflectance.

As LRVs encompass the total amount of light reflected and are largely dependent on colour, gloss level differences for the same colour will have little to no effect on its LRV, so the reduced Specular Light Reflectance in a lower gloss finish of the same colour will be balanced by increased Diffuse Light Reflectance, resulting in the same total LRV. Diffuse Light Reflectance is also sometimes referred to as the 'LRV (specular excluded)' because it represents light that's reflected excluding the specular component.



LRV and Specular Light Reflectance of DGL Powder Coatings

Specular Light Reflectance values for DGL Powder Coatings range between 0.2% to 5.0% so have relatively low glare as they scatter or absorb a greater proportion of the incoming light. For the full list of both LRV and Specular Light Reflectance values for all DGL Powder Coatings products, visit **dglpowders.com/spec-solutions**.

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Advice

Our dedicated consultants can help simplify the specification process, saving you time and money by providing the right coating advice for your project.

Simply visit **dglpowders.com/contact-us**

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