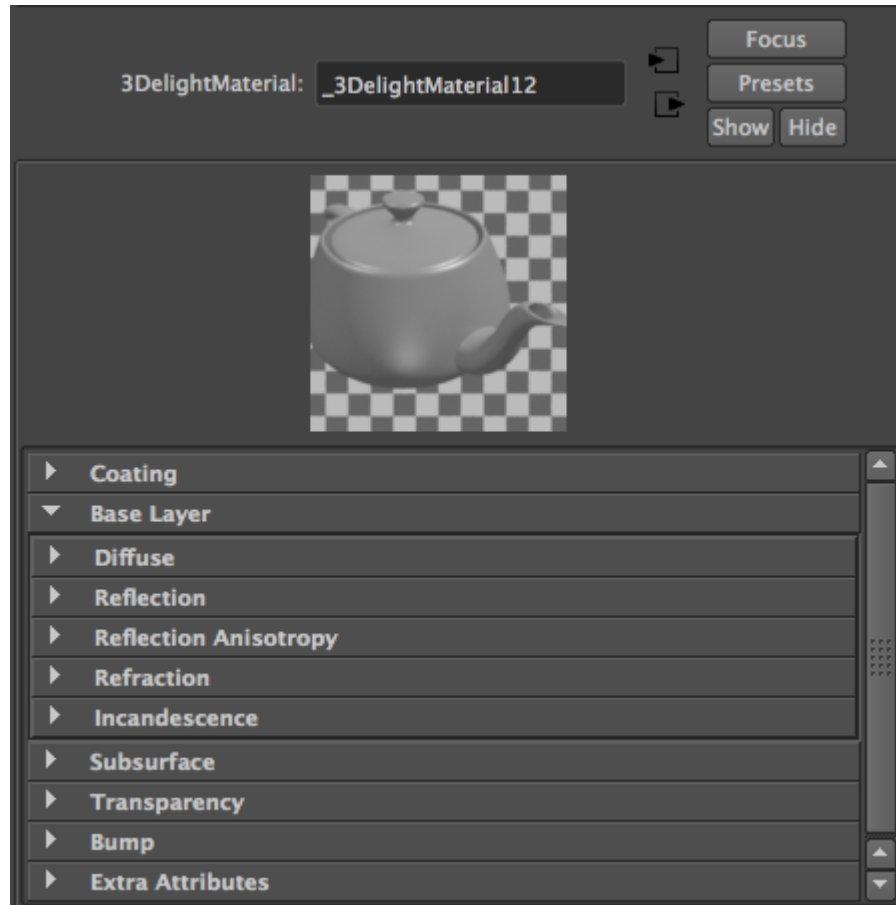


# 3Delight Material

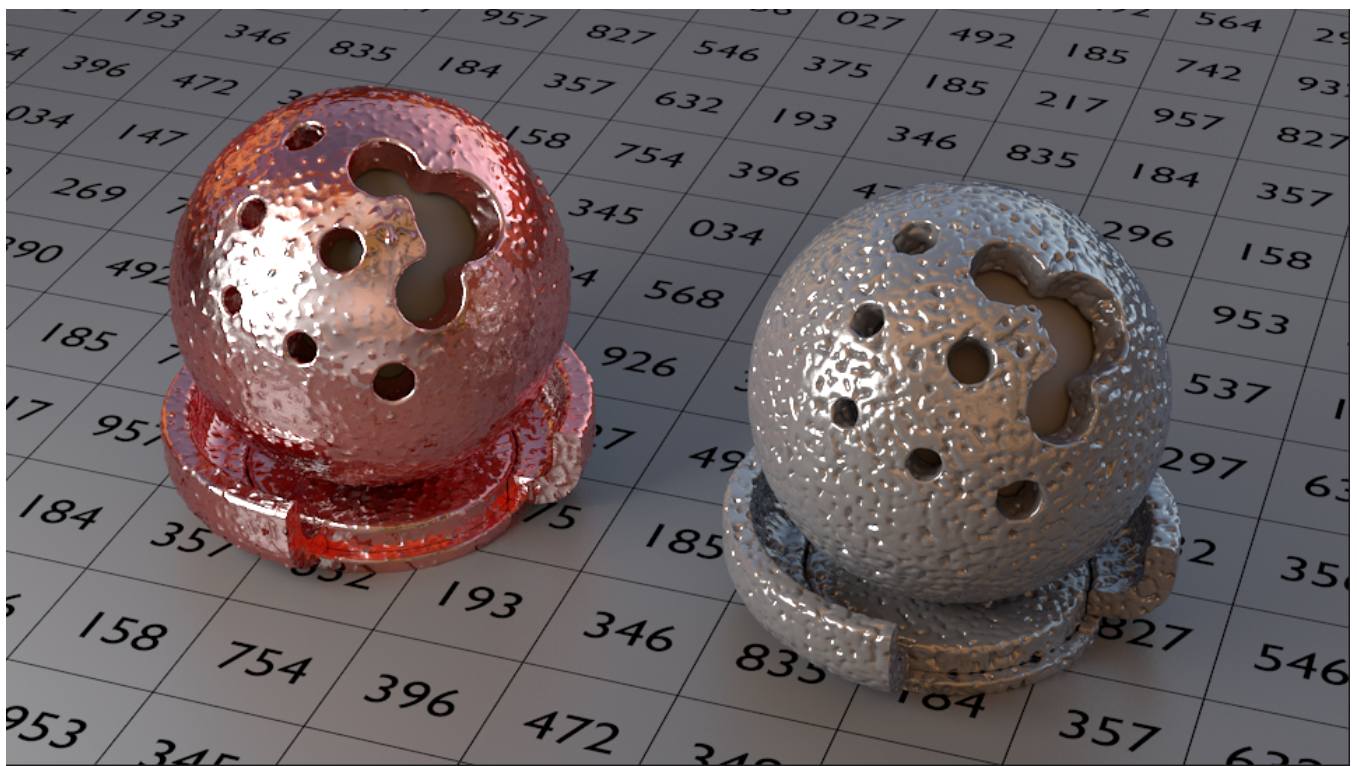
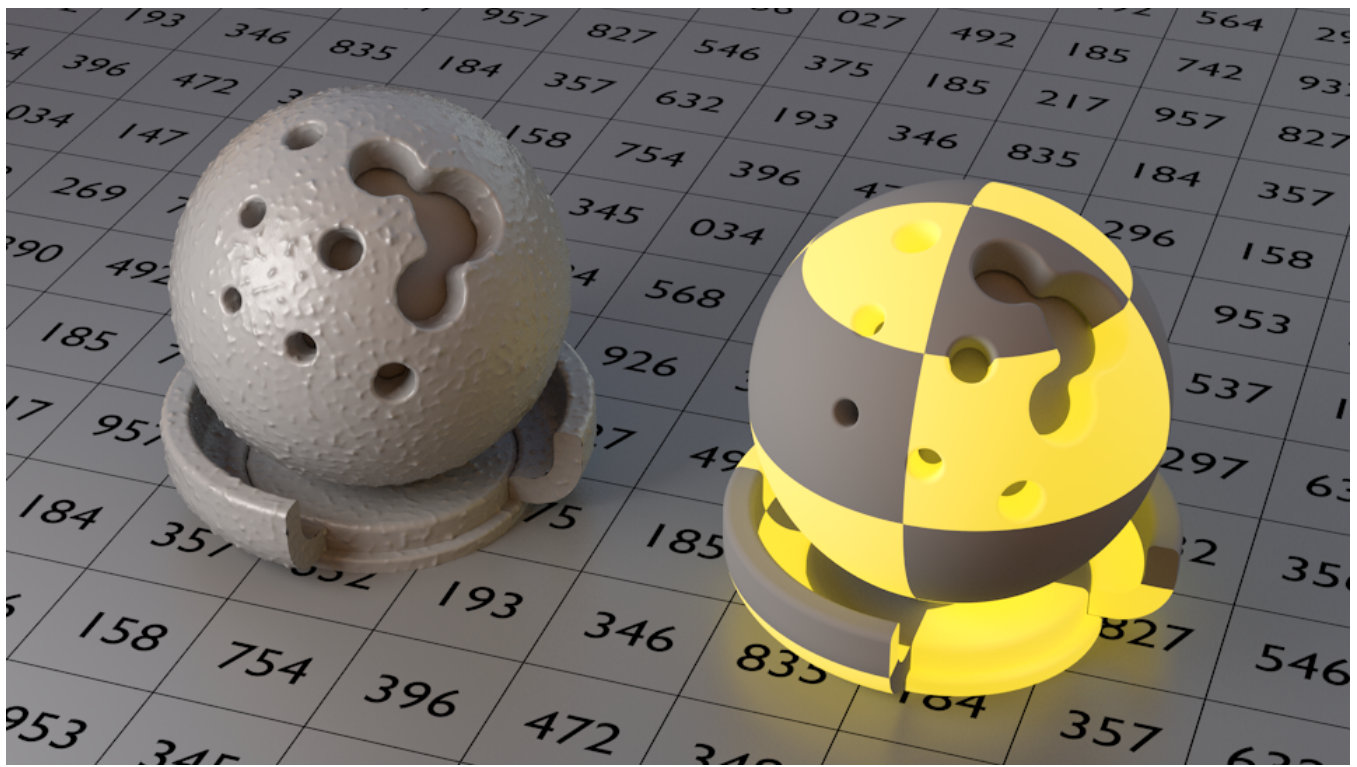
The *3Delight Material* is a general purpose, *physically plausible*, dual-layer material that can be used to render a large variety of surfaces, including the ability to simulate surfaces that have a *coating*. Coated materials include common real world objects such as furniture, cars, toys and many plastics. The coating layer adds interesting effects on gazing angles and adds an additional specular highlight (from the coating itself) that can be observed on most coated materials (it is especially noticeable on car paint and many legacy shaders simulate this effect by having a secondary highlight control, which is not physically plausible). Bump mapping can be applied to either/or the coating and the base layer. Additionally, just as any other Maya material it can be used in conjunction with displacement.

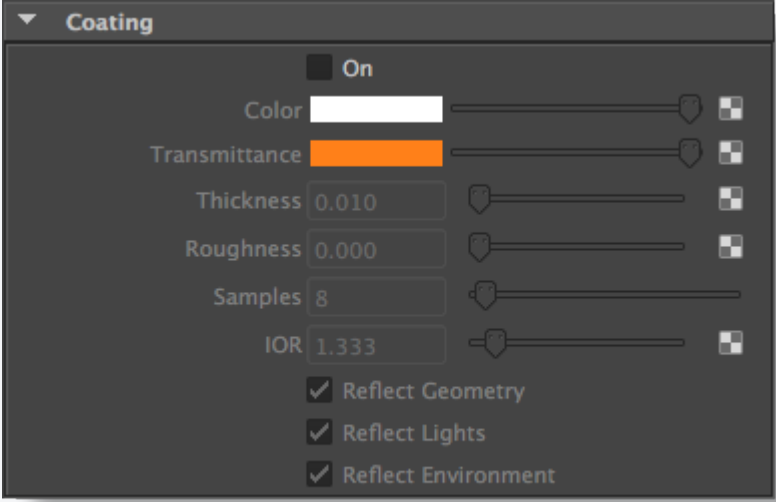


*The 3Delight Material with three group of parameters:  
Coating, Base Layer, Subsurface, Transparency and Bump.  
The Base Layer is further sub-divided in: Diffuse, Reflection, Anisotropy, Refraction and Incandescence*

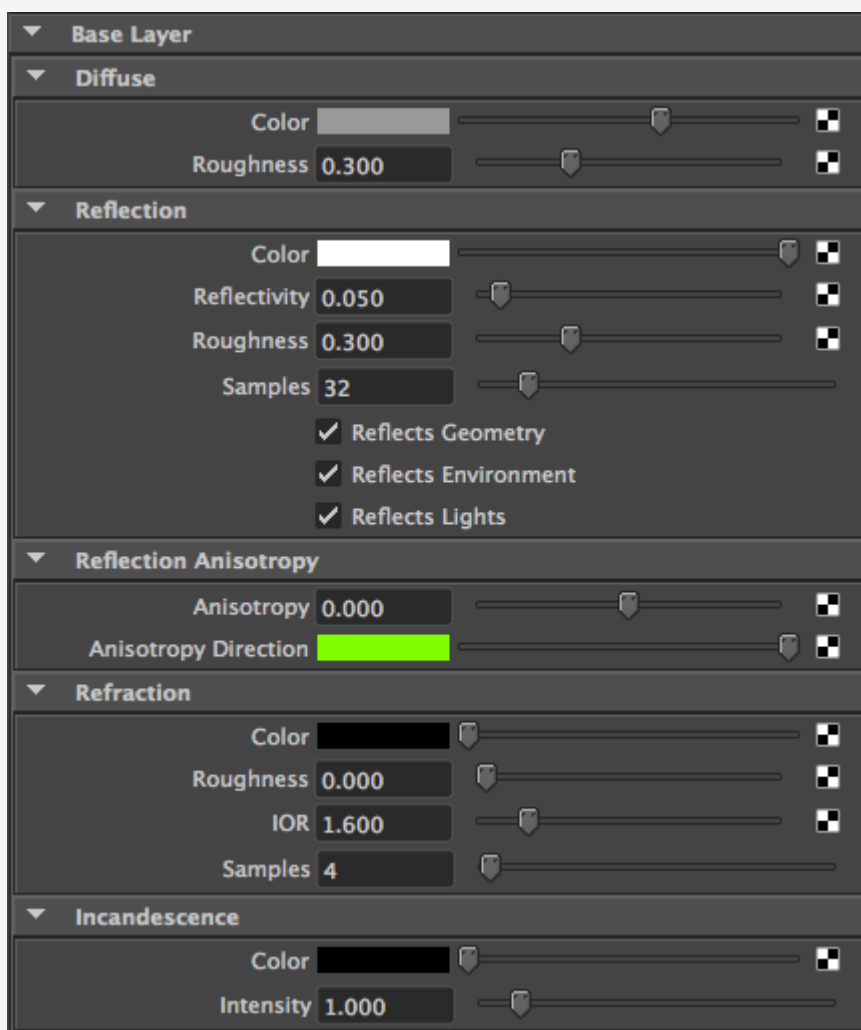









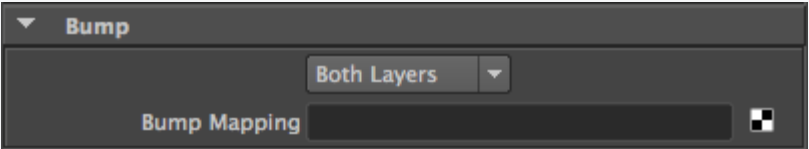
Coating	
On	<p>Specifies whether or not there is a coating on top of the <i>Base</i> layer. Visually, the presence of coating adds the following two look of the layer:</p> <ol style="list-style-type: none"><li>1. Adds a specular highlight because light can bounce off the smooth surface of the coating.</li><li>2. Adds a light absorption effect. This is especially visible on grazing angles where light travels a longer distance before it</li></ol>
Color	Color of the coating. This is basically the color of the specular highlight that is seen on the coated surface.
Transmittance	The color of the interior of coating. Light that travels through the coating will be coloured according to transmittance.
Thickness	Thickness of the coating in scene units (world units). For example, when rendering a coated table of 1 meter, a value of 0.1 represents a thickness of 1 millimeter.
Roughness	This controls the specular roughness of the coating material. The smaller the value, the smoother is the surface.
Samples	This is the total number of samples to trace in order to sample the scene in the specular direction. The rougher the material, the more samples are needed to avoid undue noise.
IOR	The index of refraction of the coating layer. A value of 1.3 is usual.
Reflect Geometry Reflect Lights Reflect Environment	Specifies if the coating reflects the <i>Geometries</i> , <i>Lights</i> and <i>Environment</i> respectively. Disabling the reflection of geometries: disables rendering because no ray-objects intersections are performed. "Reflect Lights" enables or disables specular highlight from

## Base



Diffuse Color	This diffuse Color of the base material.
Diffuse Roughness	This controls how diffuse is the material. A value closer to one simulate very rough materials such as chalk. A value of 0 re "lambertian" diffuse. On a more technical note, this paramter controls the roughness of the Oren-Nayer diffuse model.
Reflection Color	Specifies the color of the specular highlight.
Reflection Roughness	This controls the specular roughness of the base layer. The smaller the value, the smoother is the surface.
Reflection Samples	Specifies the total number of samples to trace in order to sample the scene in the specular direction. The rougher is the m samples are needed to avoid noise.
Reflectivity	Specifies the degree of reflectivity through a normalised range. This indirectly controls the index of refraction and fresnel tr reflection.
Reflect Geometry Reflect Lights Reflect Environment	Specifies if the base coating reflects <i>Geometries</i> , <i>Lights</i> and the <i>Environment</i> respectively. Disabling the reflection of geon rendering because no ray-objects intersections are performed. "Reflect Lights" enables or disables specular highlight from
Anisotropy	Specifies anisotropy "directionality". 0 means no anisotropy. Positive values will increase anisotropy along the anisotropy c negative value will increase it along the perpendicular direction.
Anisotropy Direction	Specifies the anisotropy direction in local tangents space.
Refraction Color	The color of the refraction. Setting this color to 0 disables refraction.
Refraction Roughness	Specifies the roughness of the refraction. The smaller the value, the smoother is the surface. Higher values can be used to glass" for example.
Refraction Samples	Total number of refraction samples to trace. The rougher is the refractive material the more samples are needed to avoid r
Refraction IOR	Sets the index of refraction in case the base layer is refractive.

Subsurface	<div><div><div><div>▼ Subsurface</div><div><div><div>✓ On</div></div><div><div>Subsurface Algorithm</div><div>Ray Traced</div><div>▼</div></div><div><div>Samples</div><div>128</div><div><div></div><div></div></div></div><div><div>Scattering</div><div></div><div><div></div><div></div></div></div><div><div>Scattering Scale</div><div>3.000</div><div><div></div><div></div></div></div><div><div>Transmittance</div><div></div><div><div></div><div></div></div></div><div><div>Transmittance Scale</div><div>0.010</div><div><div></div><div></div></div></div><div><div>IOR</div><div>1.600</div><div><div></div><div></div></div></div><div><div>Scale</div><div>0.100</div><div><div></div><div></div></div></div><div><div>Group</div><div></div></div></div></div></div></div>
On	Specifies whether or not the material has subsurface light penetration.
Scattering Algorithm	Whether to use Ray Traced subsurface (default) or Point-Based subsurface (legacy, for lower pixel complexity projects which are intensive).
Scattering	The tint of the light that is scattered inside the material. Visually, this means that the light which penetrates the object far from a point will be tinted by this color. For skin, this would be bluish.
Scattering Scale	Scattering isn't usually confined to the 0..1 range (physically, it is expressed in 1/mm). So to have a user friendly UI in which it still be expressed as a color, we added a separate scale to control the general amplitude.
Transmittance	Visually, this specifies the color of the light that is diffused nearby the entry point of a light beam. For skin, this would be red.
Transmittance Scale	Same as for <i>Scattering Scale</i> but applies for <i>Transmittance</i> .
IOR	The index of refraction of the base layer.
Scale	<p>A global scale that applies to this material. Larger scales will make the object appear more translucent. This is the best way to control how much diffusion goes into the surface. A scale closer to 0 will tend to disable the subsurface scattering effect and the surface will appear more opaque.</p> <div><div><div>Scale 0.05</div></div><div><div>Scale 0.1</div></div><div><div>Scale 0</div></div></div>
Group	This allows many objects, with different materials, share the same "subsurface simulation". For example, two intersecting objects with different material properties but with the same group name will have correct subsurface intersections along the intersecting lines.
Transparency	<div><div><div>▼ Transparency</div><div><div>Color</div><div></div><div><div></div><div></div></div></div></div></div>
Color	The color of the transparency, this is the actual opacity and is unrelated to refractions.

Bump	
Layer Selection	Allows you to choose wether to apply bump to the coating, base or both layers (default).
Bump Mapping	A slot to connect a Maya bump2d or nbump3d node, simply click on the texture button to connect a texturing node, the bur created automatically and recognise wether of 2d or 3d type.