

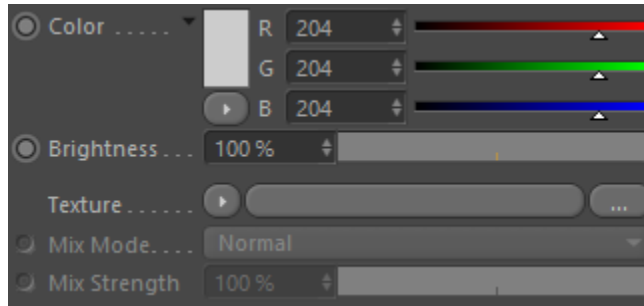
# Cinema 4D Standard Material

C4DtoA automatically translates native Cinema 4D Standard Materials to [Arnold shader networks](#) using a [standard surface](#) shader and its parameters linked to other shaders (e.g. [image](#) or [layer\\_rgba](#)) depending on the settings. Depending on the active channels a [normal\\_map](#) or [bump2d](#) shader is connected to the standard. [Displacement](#) maps are also supported.

However, there are some limitations. This is because the mapping between the Arnold shader system and the C4D material is not possible sometimes. Also, please note that shader implementations (models, parameters, etc.) are not the same, which results in a slightly different look.

## Color and Texture Mixing

The C4D Material has a common approach using channels for mixing a texture with a color.



If no texture is defined, only the **Color** is exported to Arnold with **Brightness** as the weight.

If **Texture** is defined and there is no mixing (**Mix Mode** is *Normal*, and **Mix Strength** is *100%*), then an image shader is exported with the texture path as the file name.

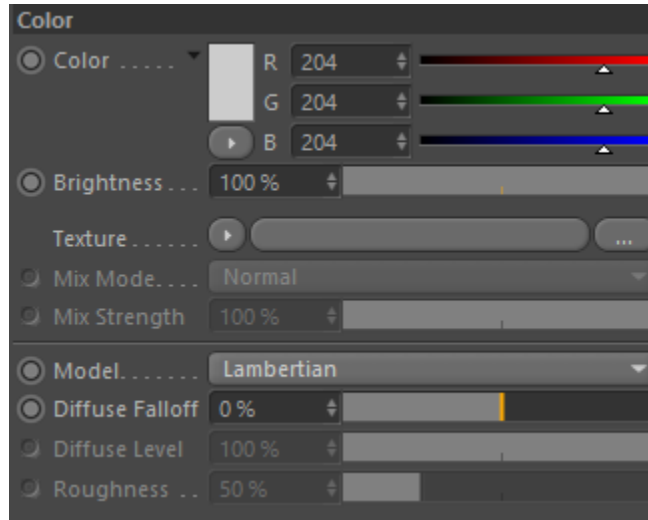
If mixing is enabled (**Mix Mode** is not *Normal* or **Mix Strength** is less than 100%), then a `layer_color` shader is exported. Layer setup depends on the mix mode:

Mix Mode	Layer parameters
<i>Normal</i>	<ul style="list-style-type: none"><li>• Layer 1: Color</li><li>• Layer 1 alpha: Brightness</li><li>• Layer 1 mode: Normal</li><li>• Layer 2: Texture</li><li>• Layer 2 alpha: Mix strength</li><li>• Layer 2 mode: Normal</li></ul>
<i>Add</i>	<ul style="list-style-type: none"><li>• Layer 1: Color</li><li>• Layer 1 alpha: Brightness</li><li>• Layer 1 mode: Normal</li><li>• Layer 2: Texture</li><li>• Layer 2 alpha: Mix strength</li><li>• Layer 2 mode: Add</li></ul>
<i>Subtract</i>	<ul style="list-style-type: none"><li>• Layer 1: Texture</li><li>• Layer 1 alpha: 1</li><li>• Layer 1 mode: Normal</li><li>• Layer 2: Color</li><li>• Layer 2 alpha: <math>\text{Brightness} * \sqrt{\text{Mix Strength}}</math></li><li>• Layer 2 mode: Subtract</li></ul>
<i>Multiply</i>	<ul style="list-style-type: none"><li>• Layer 1: Color</li><li>• Layer 1 alpha: <math>\text{Brightness} * \sqrt{\text{Mix strength}}</math></li><li>• Layer 1 mode: Normal</li><li>• Layer 2: Texture</li><li>• Layer 2 alpha: 1</li><li>• Layer 2 mode: Multiply</li></ul>

# C4D Material Parameters

The following tables summarize which settings of the C4D Material are supported and how they are translated to Arnold.

## Color Channel



## Supported Parameters

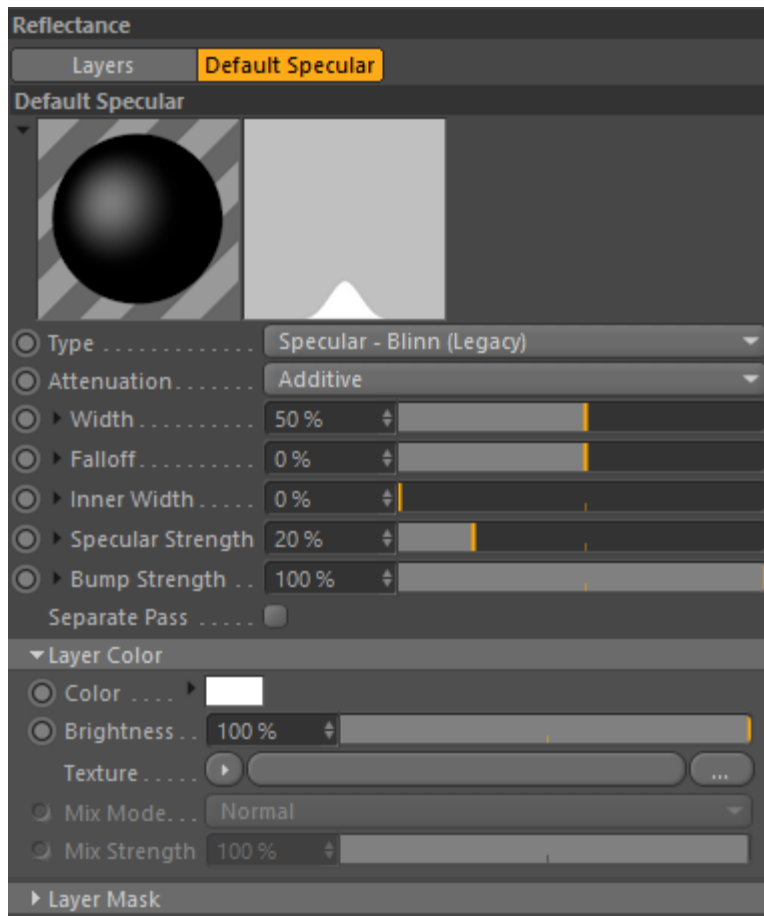
C4D	Arnold
Color, Brightness, Texture, Mix Mode, Mix Strength	Exported to <b>Diffuse color</b> as described in <a href="#">Color and texture mixing</a> .
Roughness	<b>Diffuse roughness</b>

## Unsupported Parameters

- Model
- Diffuse Falloff
- Diffuse Level

## Reflectance Channel

Only the first layer is supported at the moment.



### Supported Parameters

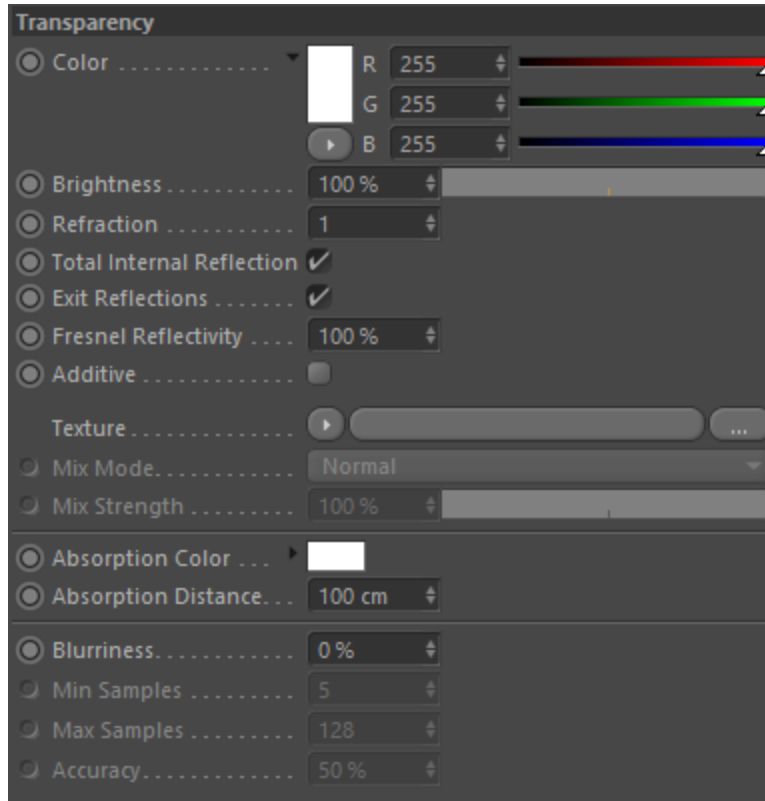
C4D	Arnold
Layer Color	Exported to <b>Specular color</b> and <b>Reflection color</b> as described in <a href="#">Color and texture mixing</a> .
Layer Mask	If mask is enabled it's added as the third layer to the Specular or Reflection color with Multiply blend mode.
Roughness	Exported to <b>Specular Roughness</b> if Type is Beckmann, GGX, Phong, Ward, Anisotropic or Reflection (Legacy).
Width	Exported to <b>Specular Roughness</b> if Type is Specular - Blinn (Legacy) or Specular - Phong (Legacy).
Specular Strength	Exported as a multiplier of <b>Specular weight</b> .
Reflection Strength	Exported as a multiplier of <b>Reflection weight</b> .
Anisotropy	Exported to <b>Anisotropy</b> if Type is Anisotropic.
Orientation	Exported to <b>Rotation</b> if Type is Anisotropic.

Specular and Reflection channel is supported in Cinema 4D R15.

### Unsupported Parameters

- Type
- Attenuation
- Bump Strength
- Layer Anisotropy / Re-projection
- Layer Anisotropy / Pattern
- Layer Anisotropy / Mirror
- Layer Anisotropy / Scratches
- Layer Fresnel
- Layer Sampling
- Layer Cloth
- Falloff and Inner Width of legacy specular types

## Transparency Channel



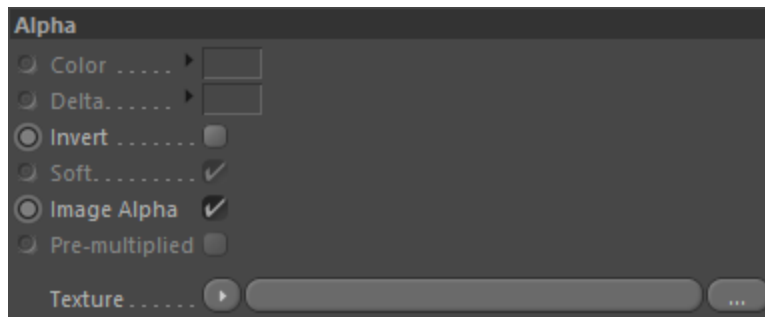
### Supported Parameters

C4D	Arnold
Color, Brightness, Texture, Mix Mode, Mix Strength	Exported to <b>Refraction</b> as described in <a href="#">Color and texture mixing</a> .
Refraction	<b>IOR</b>
Blurriness	<b>Refraction roughness</b>

### Unsupported Parameters

- Total Internal Reflection: this is always on in the Arnold standard shader.
- Exit Reflections
- Fresnel Reflectivity
- Additive
- Absorption Distance
- Min Samples
- Max Samples
- Accuracy

## Alpha Channel



## Supported Parameters

C4D	Arnold
Texture	Exported as an image shader connected to <b>Refraction / Opacity</b> .
Invert	Exported as a subtract shader to invert the output of the image shader.
Image Alpha	If enabled the image shader outputs only the alpha channel ( <b>Single channel is on, Start channel is 3</b> ). Otherwise, an <i>rgb_to_float</i> shader is added to output the average color of the image.

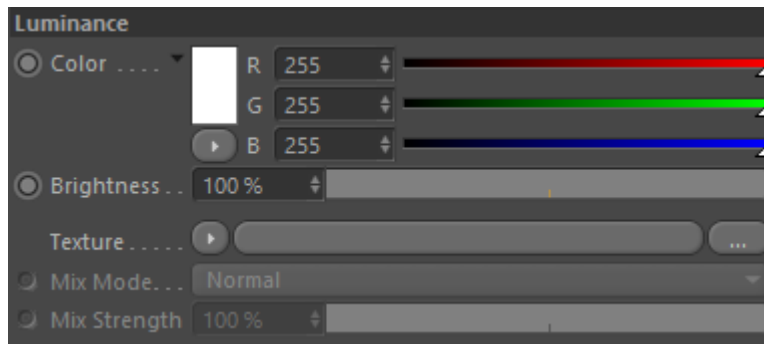


**Opaque** should be disabled on the object (**Arnold Parameters tag > Opaque**) otherwise opacity has no effect.

## Unsupported Parameters

- Color
- Delta
- Soft: This is always on.
- Pre-multiplied

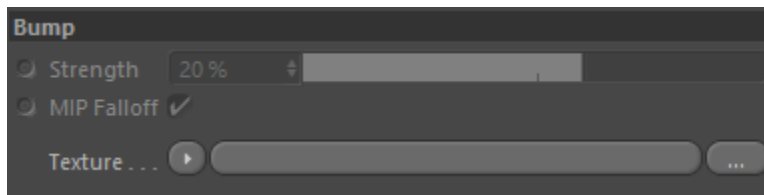
## Luminance Channel



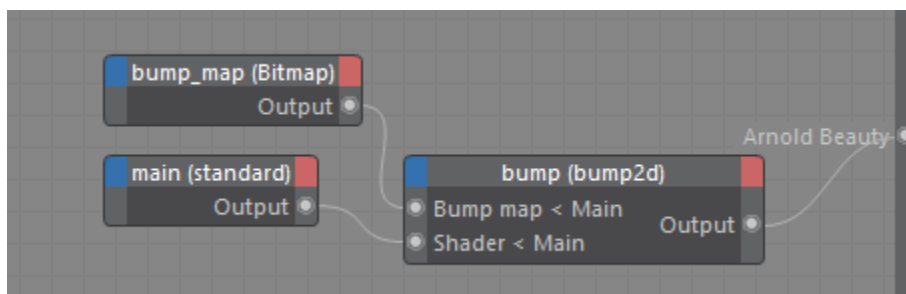
## Supported Parameters

C4D	Arnold
Color, Brightness, Texture, Mix Mode, Mix Strength	Exported to <b>Emission color</b> as described in <a href="#">Color and texture mixing</a> .

## Bump Channel



Exported as a **bump2d** shader above the standard shader.



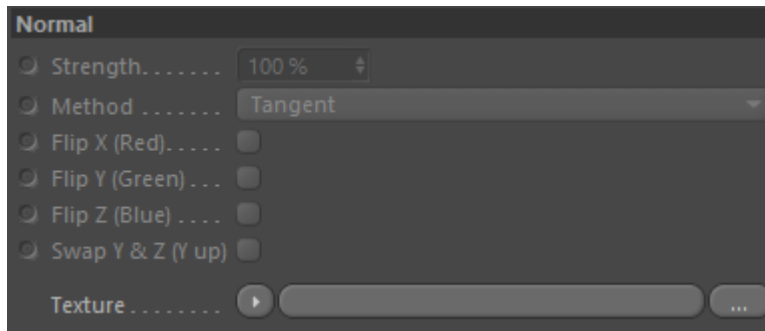
## Supported Parameters

C4D	Arnold
Texture	Exported as a <a href="#">C4D shader</a> (e.g. <a href="#">Bitmap</a> ) connected to bump2d's <b>Map</b> .
Strength	<b>Height</b>

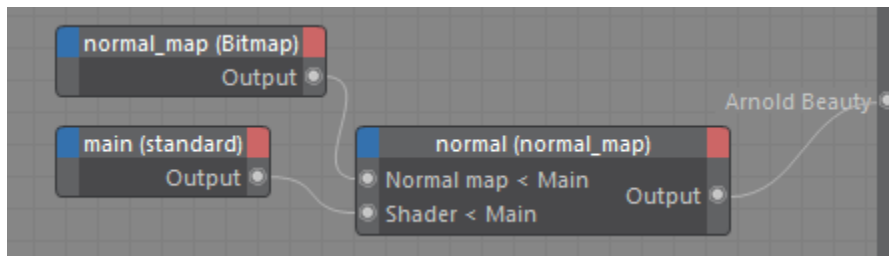
## Unsupported Parameters

- MIP Falloff

## Normal Channel



Exported as a [normal\\_map](#) shader above the standard shader.



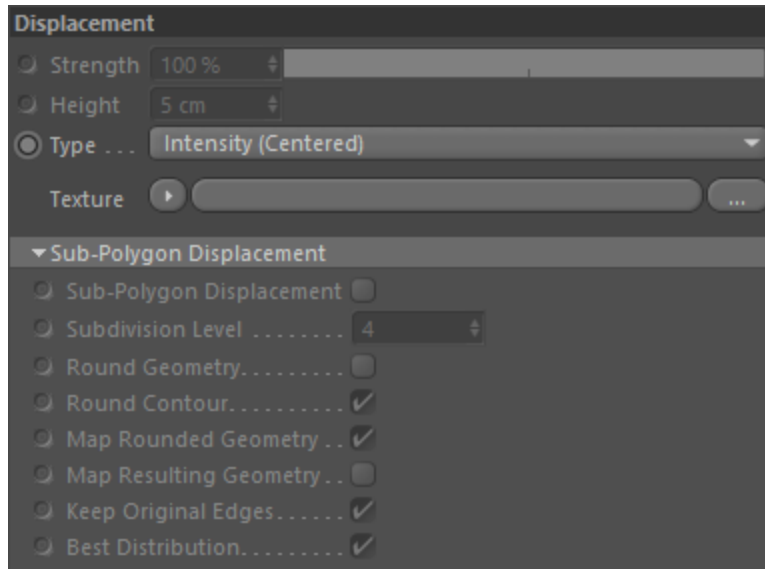
## Supported Parameters

C4D	Arnold
Texture	Exported as a <a href="#">C4D shader</a> (e.g. <a href="#">Bitmap</a> ) connected to the normal_map's <b>Map</b> .
Method	<b>Mode</b>
Flip X (Red)	<b>Flip R</b>
Flip Y (Green)	<b>Flip G</b>
Swap Y & Z (Y up)	<b>Swap R and G</b>

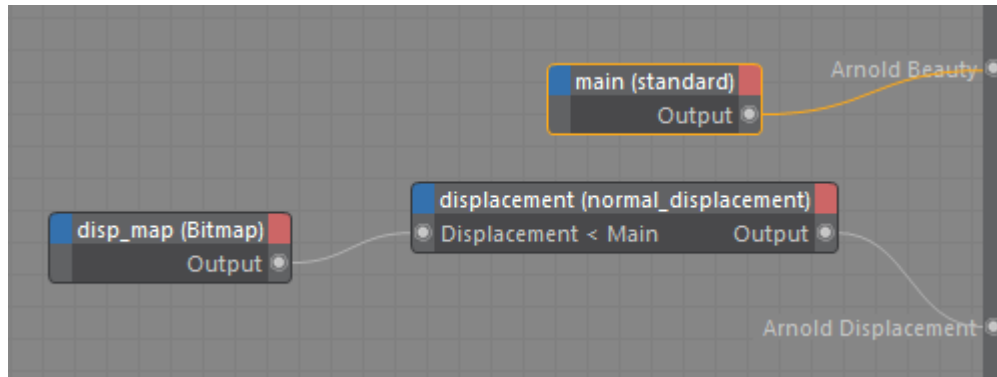
## Unsupported Parameters

- Strength
- Method / World
- Flip Z (Blue)

## Displacement Channel



The displacement channel is exported as a sub-network connected to the *Arnold Displacement* port of the Arnold material.



The exported displacement shader depends on **Type**:

- *Intensity, Intensity (Centered), Red / Green*: `normal_displacement`
- *RGB (XYZ Tangent), RGB (XYZ Object), RGB (XYZ World)*: `vector_displacement`

### Supported Parameters

C4D	Arnold
Texture	Exported as a <a href="#">C4D shader</a> (e.g. <code>Bitmap</code> ) connected to displacement <i>Map</i> .
Strength	<b>Scale</b>

### Unsupported Parameters

- Height: Displacement height is object based in Arnold instead of the material based approach of Cinema 4D. You have to add an **Arnold Parameters** tag to an object to set the height.
- Sub-Polygon Displacement

### Channels Not Supported

- Diffusion
- Environment
- Fog
- Glow
- Illumination

## Shortcuts

Selected C4D Materials can be converted to Arnold Shader Network materials which allows you to edit and extend the shader network for your needs. The following shortcuts are available:

- **Alt+W and C:** Converts a C4D Material to an Arnold shader network by adding the equivalent Arnold Shader Network material to the scene next to the C4D Material.
- **Alt+W and M:** Replaces a C4D Material with the equivalent Arnold Shader Network material. The original C4D Material will be removed from the scene.

Shortcuts can be changed in *Window > Customization > Customize Commands...* dialog.