



KPT Materializer

KPT Materializer lets you apply surface texture to an image or to a preselected portion of an image. You can use KPT Materializer to emboss, distort, tint, add reflectivity, or otherwise create the illusion of surface material. Because standard KPT lighting controls are present, you can apply an unlimited number of lights and lighting properties as you work with the surface material.

This chapter provides specific information about working with KPT Materializer, including:

- [Overview of KPT Materializer](#)
- [Working with KPT Materializer](#)
- [Controlling Surface Material](#)
- [Using an Environment Map](#)
- [Adjusting Texture Appearance](#)
- [Using the Presets Library](#)

Refer to [KPT 6 Basics](#) for more information about using standard features of the KPT user interface.

Overview of KPT Materializer

The following controls are available in KPT Materializer:

- Lighting controls provide control over an unlimited number of lights and all of their associated properties. Add lights right where you want them. Set individual light brightness, sheen, and spread—or set ambient lighting, to add light equally to all areas of the texture. For more about lighting controls, refer to [“Working with Lights”](#).
- Material controls adjust properties of the resulting surface material. Add a color tint to the surface, controlling what color and how much is added. Adjust the depth of the bumps on the surface. Distort the underlying image “over” the bumps of the texture. Switch between a metallic or plastic surface, affecting how the surface interacts with lights. You can also decide how reflective the material is by setting how much of a selected environment map is blended into the material. For more about adjusting material properties, refer to [“Controlling Surface Material”](#).
- Environment controls let you load or save environment map images, which can then be blended into the surface material. For more about environment maps, refer to [“Using an Environment Map”](#).
- Texture controls affect the texture map you’re applying. Position the texture horizontally or vertically. Rotate or scale it. Add some smoothing or invert the texture for a different look. For more

about texture controls, refer to [“Adjusting Texture Appearance”](#).

To launch KPT Materializer:

- 1 In a host application, open the image you want to work with. KPT Materializer works with RGB images.
- 2 Open the image you want to modify in the host application.
- 3 If you want to apply the filter to the entire image, make sure nothing is selected.

If you want to apply the filter to a specific area, make a selection in the host application.

If you want to apply the filter to a specific layer, select it in the host application.

- 4 Select **Filter menu > KPT6 > KPT Materializer**.

KPT Materializer launches and occupies the entire screen.

Working with KPT Materializer

Setting Sliders

Each KPT Materializer panel includes standard KPT sliders. Sliders are the mechanism for adjusting a panel’s settings. When you move a slider, the panel expands to give you additional slider controls.

Refer to [“Setting Sliders”](#) for more information about working with sliders.

Using the Color Picker

The Color Picker lets you set a light or tint color for surface material.

Several KPT Materializer panels include color swatches for accessing the Color Picker.

When active, the Color Picker displays two floating bars. The top bar displays shades of gray, from black to white. The bottom bar displays a spectrum of colors and shades.



The Color Picker.

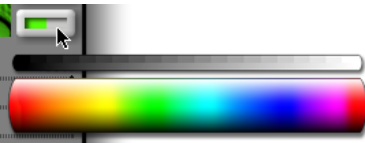
The grayscale bar is divided into two sections. The top area of the section is broken down into increments of grayscale values to make it easier to choose precise grayscale shades. The bottom of the bar is continuous blend of grays.



The two sections of the grayscale bar.

To choose a color or shade of gray:

- 1 Click and hold a color swatch to activate the Color Picker.



Click a color swatch.

Note

To access the color picker from the 3D Lighting panel, click the color circle in the bottom left corner of the panel.

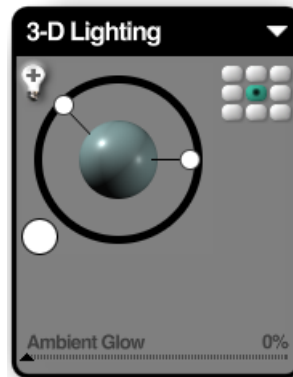
- 2 To select a color, drag your cursor over the color bar and release the mouse button over the color you want to select.

As you move over the colors, the color swatch shows both the new and the original color.

- 3 To select a shade of gray, drag your cursor over the top bar and release the mouse button over the shade of gray you want to select.

Working with Lights

The 3D Lighting panel lets you position light sources in 3D space and set their colors and brightness.



The 3D Lighting panel.

Note

Once you get a light exactly right, add it to the preset library. Then, you can access it easily for use with other projects.

Adding and Deleting Lights

When you first access the 3D Lighting panel, it has three lights. You can add more lights to illuminate the image from additional angles or to mix light colors on the surface material.

To add a light source:

- Click the Add Light icon.



Add Light icon.

To delete a light source:

- 1 Select a light source in the light preview.
- 2 Press Option/Alt and click the Add Light icon or press Delete.

Setting Highlights and Brightness

KPT Materializer's lights can be used to create complex lighting effects. To facilitate creative lighting, you can control light brightness, as well as light highlights.

Overall light brightness is controlled by a combination of light intensity and the size and spread of light highlights. The Light Brightness, Highlight Sheen, and Highlight Spread sliders are used to adjust how a light affects the texture you're applying.



Use these sliders to control overall light brightness.

- The Light Brightness slider controls light intensity.
- The Highlight Sheen slider controls the intensity of highlight.
- The Highlight Spread slider controls the size of highlights that appears on your texture.

By combining these three settings, you can control how a light affects your textures. For example, large highlights combined with high brightness can make texture appear very bright. Small, bright highlights can make texture look shiny.

Lights can also be set to cast Soft (fuzzy-edged) or Sharp highlights.

To set soft or sharp highlights:

- 1 Click on a light.

- 2 Click the Sharp/Soft toggle button to toggle between Sharp or Soft highlight edges.



Toggle between Sharp and Soft type toggle.

To set light brightness:

- 1 Click a light source.
- 2 Drag the Light Brightness slider. Drag to the right to increase brightness, or left to decrease it.

To set highlight size:

- 1 Click a light source.
- 2 Drag the Highlight Spread slider. Drag to the right to increase highlight size, or left to decrease it.

To set highlight intensity:

- 1 Click a light source.
- 2 Drag the Highlight Sheen slider. Drag to the right to increase highlight brightness, or left to decrease it.

Setting Ambient Light

Ambient light applies equally to all pixels, regardless of elevation.



Use the Ambient slider to apply light equally to all pixels.

Adjusting the Distort slider causes some refraction to take place, causing image distortion, without any other effect. With ambient light, it's possible to distort a source image without applying any shading. For example, delete all lights and turn Ambient Glow up to full. Turn off all tinting. The surface bump has no visible shading effect.

To set Ambient light:

- 1 Make sure that no light source is selected.
- 2 Drag the Ambient Glow slider. Drag to the right to increase ambient light, or left to decrease it.

Turning Lights On and Off

The On/Off toggle button lets you turn a light on or off.

To turn a light on or off:

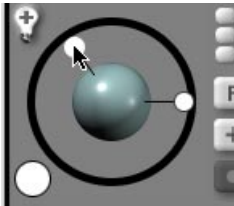
- 1 Click on a light.
- 2 Click the On/Off toggle button to toggle between on and off.



On/Off light toggle.

Positioning Lights

The sphere in the center of the control represents your object in three-dimensional space. The balls surrounding the large sphere in the center represent light sources.



Drag light circles to reposition lights.

By dragging these light sources to different positions around the ball, you can adjust the lighting angle on your surface material.

Tip

You can also drag the large sphere to reposition all the lights at once.

Sending Lights to Front or Back

The Front/Back button lets you quickly move a light to the front or back of your surface material.

To send a light to front or back:

- 1 Click on a light.
- 2 Click the Front/Back button to change between in front of or behind the surface material you're applying.



The Front/Back button.

Setting Light Color

A light's color can tint the color of all the surface material you're working with. Light color is reflected in highlights.

You can mix light colors. For example, if you have a blue light source and a yellow light source, your surface material has a greenish highlight.

To change a light's color:

- 1 Click one of the light sources in the light control.
- 2 Click the color dot in the bottom left corner of the 3D Lighting panel. The Color Picker appears. While pressing the mouse button, drag the cursor over the color you want to use.

When you release the mouse button, the color is selected. Refer to [“Using the Color Picker”](#) for more about using the color picker.



The Light color dot.

Controlling Surface Material

The Material panel provides control over the properties of the surface material you’re applying.



The Material panel lets you control surface material properties.

You can add a color tint to the surface, controlling what color and how much is added. You can control the surface depth, creating deep or shallow bumps and valleys. You can distort the underlying image “over” the texture, stretching it to fit the “terrain”. You can determine how reflective material is

by adjusting how much of a selected environment map is blended into the material. You can affect how the surface interacts with light by switching between a metallic or plastic surface.

Note

Once you get a texture just right, add it to the preset library. Then, you can access it easily for use with other projects.

Positioning the Real-Time Preview Rectangle

The Preview window shows the results of settings you make to control the surface material. After an adjustment to a slider is made, the Preview window changes to show the results.

Within the Preview window is a small, movable rectangle, referred to as the Preview rectangle. The contents of the Preview rectangle is displayed at the top of the Material panel. Because this rectangular area is smaller than the Preview window, it updates rapidly, allowing you to see “real-time” changes as you adjust a slider.



Position the Preview rectangle within the Preview window, then watch the Material panel for a real-time preview when adjusting a slider.

Use this small viewer as you fine-tune slider adjustments. By positioning the Preview rectangle, you can select which area of the larger image is used in the real-time preview.

To position the Preview rectangle:

- 1 Click the Preview rectangle. While pressing the mouse button, drag the rectangle over the portion of the image you want used in the real-time preview.

Setting Tint Color

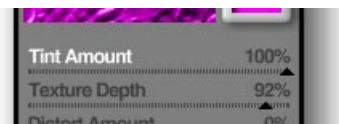
KPT Materializer lets you tint surface material to a selected color, then raise or lower the amount of tint that is applied. You can think of the Tint setting as looking at the underlying image through a “colored camera filter”.

To set tint color:

- Click the color dot in the bottom left corner of the 3D Lighting panel. The Color Picker appears. While pressing the mouse button, drag the cursor over the color you want to use.

To adjust how much tint is applied:

- Adjust the position of the Tint Amount slider or click the number below and type in a value. The higher the tint amount value, the more color is added to surface material.



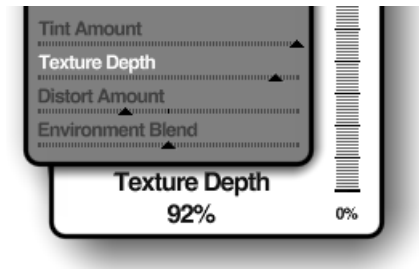
The Material panel Tint Amount slider.

Setting Texture Depth

You can adjust the apparent depth of the bumps on the surface material.

To adjust how much texture depth is applied:

- Adjust the position of the Texture Depth slider or click the number below and type in a value. The higher the depth setting, the more dramatic the difference becomes between high and low elements of the material.



The Material panel Texture Depth slider.

Setting the Amount of Distortion

Distort Amount settings are used to distort the underlying image “over” the bumps of the surface texture. The “height” of the texture is used to define the amount of distortion. The Distort setting relies upon the texture being transparent, so that the underlying image can be seen.

The Distort slider allows you to create ripples in the color map of the texture, based on the texture map. These ripples are not created by flowing color over the surface of the bumps,

but rather are created by refracting color, as if the bump was a glass pane placed over the top. However, distortion can create the illusion of a flowing surface if used properly.



By using a high-frequency noise map as the texture, and turning distort all the way up, the illusion of the surface being wrapped over the noise map is lost, but the result looks like a standard glass distortion filter.



This simple example uses the Distort feature to simulate refraction. It gives the illusion of having placed the image underneath a rippled water-like surface—all achieved by using some tinting, an environment map, and a bit of distortion.

If the source image is on a layer that has transparency, transparent edges will be “rippled” by the texture map, altering the transparency of the layer. Where there are peaks, edges ripple outwards. Edges are not, however, rippled out over the edge of a selection. Selections themselves are not changed by KPT Materializer.



KPT Materializer deals with layers that have transparency.

The following is important to remember. Small adjustments to the amount of distortion work best.

- Slight positive offsets from 0 create some realistic results, as if the texture was folding, bunching, denting, stretching the texture over peaks.
- Slight negative offsets create opposite effects.
- More extreme values tend to reduce realism, creating water-like refractions, as if the surface was the surface of a pond on top of the image.

To distort an image over the surface texture:

- Adjust the position of the Distort slider in the Material panel or click the number below and type a value.

Switching Between Plastic or Metallic

You can use either a plastic or metallic surface for the texture you're applying. Although the difference may be subtle, metallic surfaces interact differently with lights than do plastic surfaces.

Plastic...



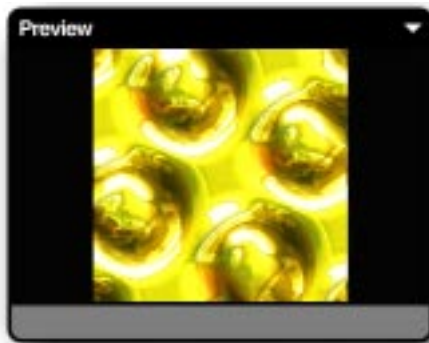
Metal...



A colorful backdrop after applying KPT Materializer, using the image's own saturation channel. Lighting is identical. Note that the plastic sample appears to be more brightly lit, because the highlight goes straight to white, rather than just increasing the luminance of the surface. This means that with a metal surface, you can apply more lighting without it overflowing and creating large areas of no detail.



This example of the texture uses a metallic surface to give the silk a shimmer. Highlights are light purple instead of white. Technically, it should be a “plastic” surface, but some materials seem to prefer metallic highlights.



This image was heavily lit with bright highlights to give it large areas of “blow-out” where highlight covers a large surface of the texture. There’s also an environment map blended in there, which helps increase the light over the surface and also adds some detail to what would otherwise be a rather bland texture.

To switch between a plastic or metallic surface:

- Click the Plastic/Metal button in the Material panel to change between plastic or metallic for the material you’re applying.



The Plastic/Metal button.

Using an Environment Map

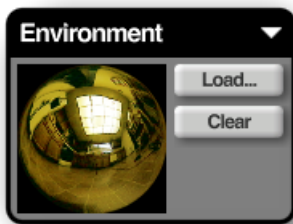
An environment map image contributes to the visual appearance of a texture. An environment map image is usually a photograph, like a photo of a reflective gazing ball. Any spherical object can be used as an environment map image. Spherical objects work better than flat objects, allowing the 3D capabilities of KPT Materializer to be exploited.

An environment map can be any RGB or grayscale image stored on your system. To simulate realistic-looking materials, the environment map should be a photograph of a spherical object, such as a garden gazing ball.

If you use a photograph of a metallic ball, the surface looks metallic. Metallic or solid colors generally work best. Complicated textures like a rainbow-striped beach ball won’t work as well. If you have KPT Spheroid Designer, KPT Glass Lens, Bryce 4, or another 3D rendering program, you can render spherical objects and use them as environment maps with excellent results.

Loading an Environment Map Image

Use the Environment panel to load an environment image. You can also load presets from the Environment Presets Library. Refer to [“Working with the Presets Library”](#) for more about using the Environment Presets Library.



Use the Environment panel to load an environment map image, which can then be blended with lighting.

Several environment maps are provided as a starting point. Feel free to examine and edit these within your painting application, and use them to create new environment maps.

To load an environment map image:

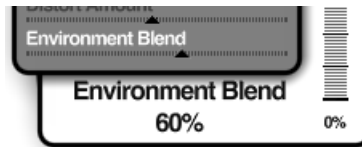
- 1 Click Load button in the Environment panel.
- 2 Locate the file you want to use and click OK. A preview of the image appears in the panel.

Note

You can also save an environment map as a preset or load an environment map from the preset library.

Blending the Environment Map

The Environment Blend slider on the Material panel controls how reflective the material is by determining how much of an environment map is blended in.



The Environment Blend slider on the Material panel determines how much of the environment map is blended with lighting.

Use the following guidelines when setting the Environment Blend slider, although the slider can be positioned anywhere in-between, to fine-tune a blending effect.

- With Environment Blend at 100%, lights are ignored and the environment map is used without modification.
- With Environment Blend at 0%, only the additional lights are used to light the surface material and the environment map is ignored.
- With Environment Blend at 50%, the environment map and additional lighting are given equal weight, causing the surface material to be lit by a synthesis of the two.

To blend an environment map with lighting:

- Adjust the position of the Environment Blend slider in the Material panel or click the number below and type a value.

Adjusting Texture Appearance

A texture map (sometimes called a bump map) defines the “roughness” or “height” of the texture applied to your source image. The texture map defines the peaks and troughs that are applied to the resulting surface. A texture map is essential to creating the illusion of a surface material. Without peaks and troughs, lighting and reflectivity artifacts would appear uniform over the entire image.

In KPT Materializer, a texture map is either a channel of the source image (hue, luminance, saturation, red, green, or blue), or it's another image, which you load to be used as the texture map. KPT Materializer uses the grayscale of whatever is used as the texture's “height map”.

Once you've chosen what to use (image or channel of the source image), you can then adjust a variety of parameters to change the texture map's appearance. You can scale, tile, rotate, invert, or offset the texture map.



The Texture panel is used to adjust texture appearance.

Any manipulations done to the texture map when a channel is selected does not alter that channel for the source image.

KPT Materializer does not adjust channels, it just uses the selected channel as a reference.

Note

Once you get a texture just right, add it to the preset library. Then, you can access it easily for use with other projects.

Choosing What to Use for the Texture's “Height Map”

You can select to use a channel of the source image or load a separate image to use as the texture's “height map”.

If you choose to use the source image, the available channels are: Hue, Luminance, Saturation, Red, Green, and Blue.

KPT Materializer uses the grayscale of that particular channel of your source image as the height map.

When selecting a channel of the source image, a commonly used choice is Luminance. With luminance, you can emboss, based on the brightness of the texture map. A picture of a person's face against a neutral background often has a strong red component, so choosing the Red channel will cause the face to be embossed “higher” than the background. Choosing Saturation can also provide interesting results.



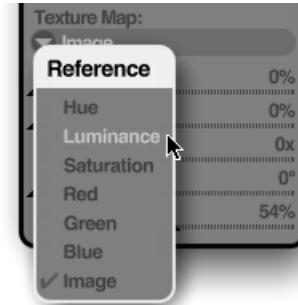
An example of using the Luminance channel to “emboss” the source image.

If you choose to load a separate image, KPT Materializer uses the grayscale of that image as the texture’s “height map”.

To select a channel of the source image as the texture’s “height map”:

- Click the triangle under Texture Map in the Texture panel and select which

channel of the source image you wish to use as the “height map”.



Choose a channel of the source image to use as the texture’s “height map”.

To use a separate image as the texture’s “height map”:

- 1 Click the triangle under Texture Map in the Texture panel and select Image.
- 2 Locate the file you want to use and click OK. A preview of the image appears in the panel.

Positioning the Texture Map

You can change the location of the texture map—the peaks and troughs—on the source image. You can offset the texture map horizontally or vertically, or rotate it. When you rotate it, KPT Materializer automatically tiles the map to ensure that it covers the source image.



You can rotate a texture map for interesting effects.

To offset the texture map horizontally:

- Adjust the position of the Horizontal Offset slider in the Texture panel or click the number below and type in a value.

To offset the texture map vertically:

- Adjust the position of the Vertical Offset slider in the Texture panel or click the number below and type in a value.

To rotate the texture map:

- Adjust the position of the Rotate slider in the Texture panel or click the number below and type in a value.

Scaling the Texture Map

You can scale the texture map up or down in size. When scaled, the texture map is automatically tiled, to ensure that it covers the source image.

Scaling a texture map can create some interesting “wallpaper” effects. Combined with lighting, rotation, and tint controls, you can easily create colorful tiled image backgrounds. Use a separate texture map image to increase dramatic effect.



An example of scaling the texture map image.

To scale a texture map:

- Adjust the position of the Scale slider in the Texture panel or click the number below and type in a value.

Smoothing the Texture Map

You can blur a texture map to smooth out sharp edges that don't look correct when embossed onto a source image.

When a texture is rough with lots of sharp transitions, smoothing can reduce the sharpness. A smoother map produces more flowing results.



A texture with high contrast areas can look rough or pixilated. Dark and light pixels next to each other can create a “sheer face” slope between high and low texture.



After some smoothing is applied, the slopes between dark and light pixels are more gradual.

When sharp transitions are desired, adjusting the smoothing slider can help accomplish that look.

When a texture map is scaled up, pixels start to become more obvious. Smoothing can help to hide that effect.



A circular texture map is scaled up significantly. Pixels that make up the circle are highly visible.



After smoothing, there is less pixilation, but the shape has changed. If you want a short, non-pixilated gradient, create the texture map at a greater scale, so you won't need to scale up and smooth as much.

Note

Internal texture maps used by KPT Materializer are 16-bit. When working with a grayscale texture map (which can only be 8-bit), applying a small bit of smoothing can reduce the graininess a little. A small amount of smoothing can be good, even if you've made a very smooth, flowing texture map.

To smooth a texture map:

- Adjust the position of the Smooth slider in the Texture panel or click the number below and type in a value.

Inverting the Texture Map

You can invert a texture map for interesting effects. When a “carved” image is not what you want, try the Invert button and “emboss” it instead.



The Invert button inverts the texture map for interesting effects.

To invert a texture map:

- Click the Invert button in the Texture panel.

Using the Presets Library

KPT Materializer includes a library of preset Environment Maps. You can also add environment maps of your own creation to the library for future use.

Refer to “[Working with the Presets Library](#)” for details about using the Presets Library.