

# Refraction Filter

This page gives some basic details about the Refraction Filter Render Element and how it is used in compositing.

## Overview

The Refraction Filter Render Element is an image that stores refraction information calculated from the materials' refraction values in the scene. Materials with no refraction values appear as black, while refractive materials appear as white (maximum refraction) or gray (lesser amounts of refraction). If any hue (color) is specified in the material's Refractive Color parameter, that hue and value will be represented here in the Refraction Filter as well as being affected by the refraction's Amount parameter.

In comparison, the [Refraction Raw](#) Render Element is a color render element that takes materials and their colors into account when rendering refraction. Multiplying these two render elements together produces the [Refraction](#) Render Element.

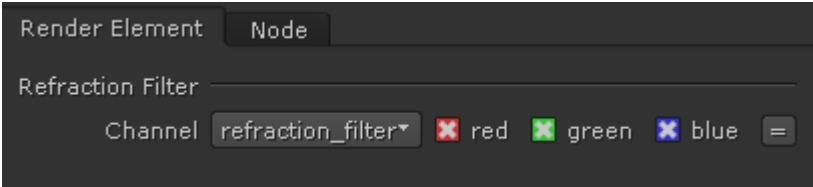


To properly calculate the Refraction Filter Render Element, the Refraction Render Element must also be added to the list of render elements being calculated during the rendering process to properly determine all the refraction information in the scene.

UI Path: ||Toolbar|| > **V-Ray Menu icon** > **Render** > **VRayRenderElement** > **Type: Refraction Filter**

## Properties

The Refraction Filter render element has no controllable properties.

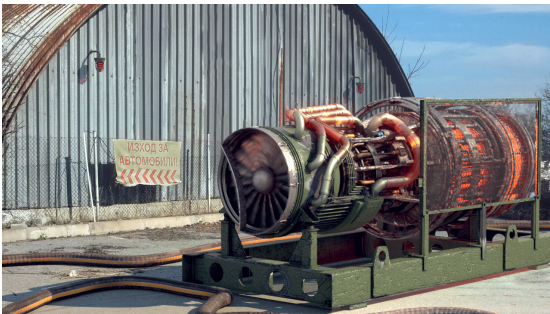


## Common Uses

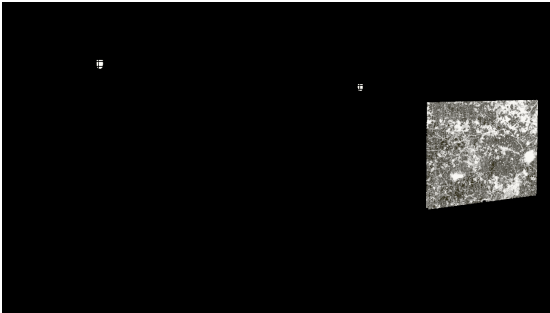
The Refraction Filter Render Element is useful for changing the appearance of refractive elements after rendering, using a compositing or image editing application. Below are examples of possible uses.



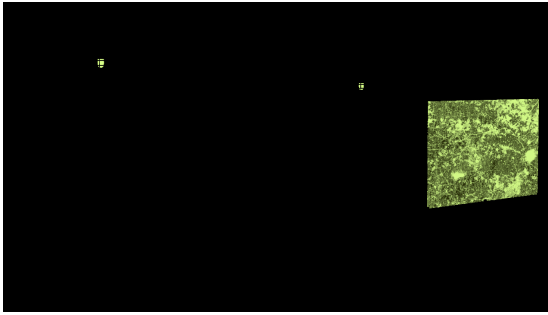
Refraction Filter Render Element



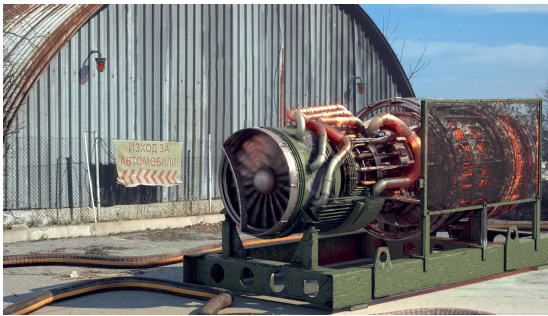
Original Beauty Composite



Refraction Filter Render Element with added contrast



Tinted Refraction Filter Render Element with added contrast



Refractions with added contrast

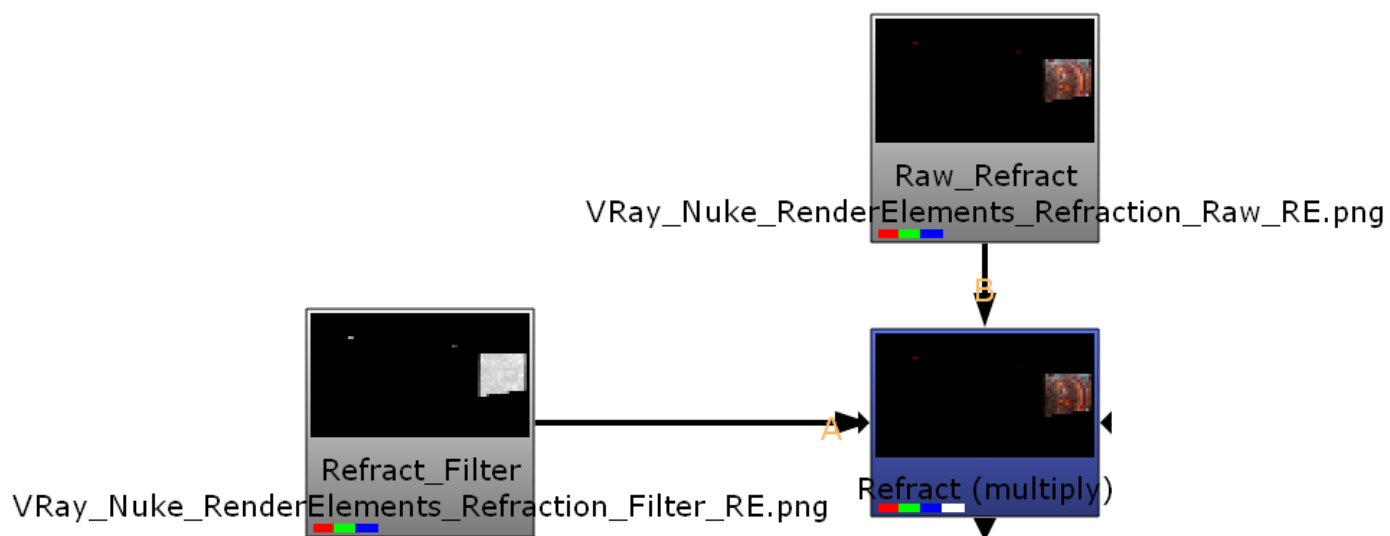


Tinted Refractions with added contrast

## Underlying Compositing Equation

The Refraction Filter Render Element is multiplied by the Raw Refraction to produce the same information seen in the Refraction pass, but having them separated out allows them to be manipulated individually before combining them together.

$$\text{Refraction Raw} \times \text{Refraction Filter} = \text{Refraction}$$



## Notes

- To properly calculate the refraction information in the Refraction Filter and [Refraction Raw](#) Render Elements, the [Refraction Render Element](#) must also be rendered at the same time, even if it's not going to be used in the compositing process. Doing so enables all the refraction information to be included in the rendering calculations.