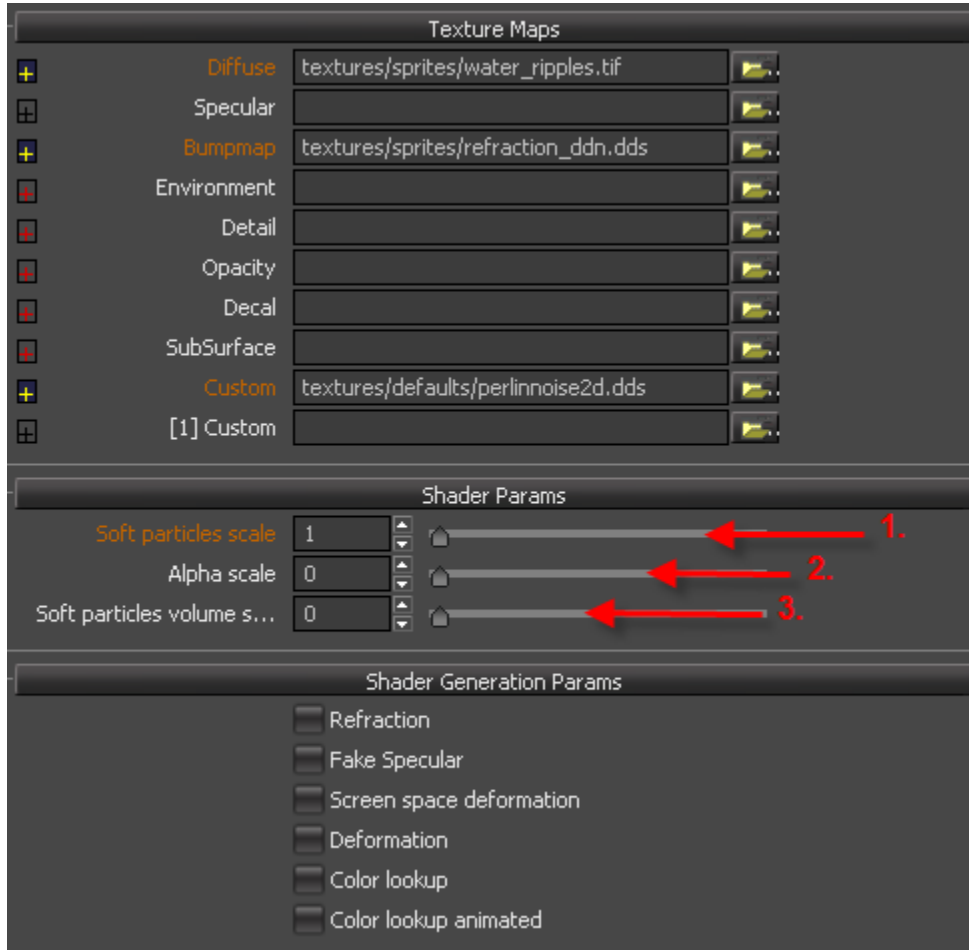


The Particles Shader is used by FX artists to create particle materials.

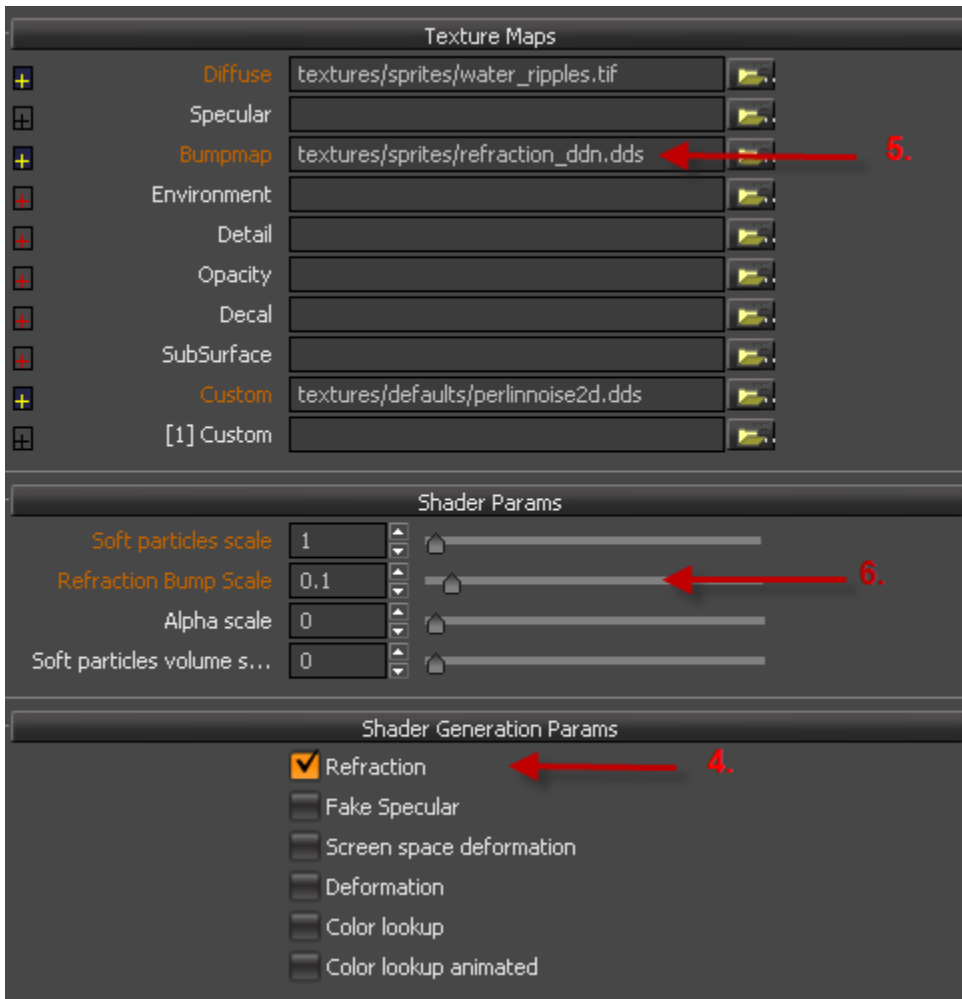
- No Shader Generation Params
- Refraction
- Fake Specular
- Screen Space Deformation
- Deformation
- Color Lookup
- Color Lookup Animated

## No Shader Generation Params



1. **Soft Particles Scale:** allows users to control soft particle intersection softness, for sharper or softer intersections.
2. **Alpha Scale:** scale for controlling particle alpha. Useful for boosting the alpha channel. For example, to have more opaque regions in a particle.
3. **Soft Particles Volume Scale:** by default soft intersection typically results in a flat intersection look, with this control users can make it look rounder, which is more appealing visually in some cases (eg: thick smoke).

## Refraction

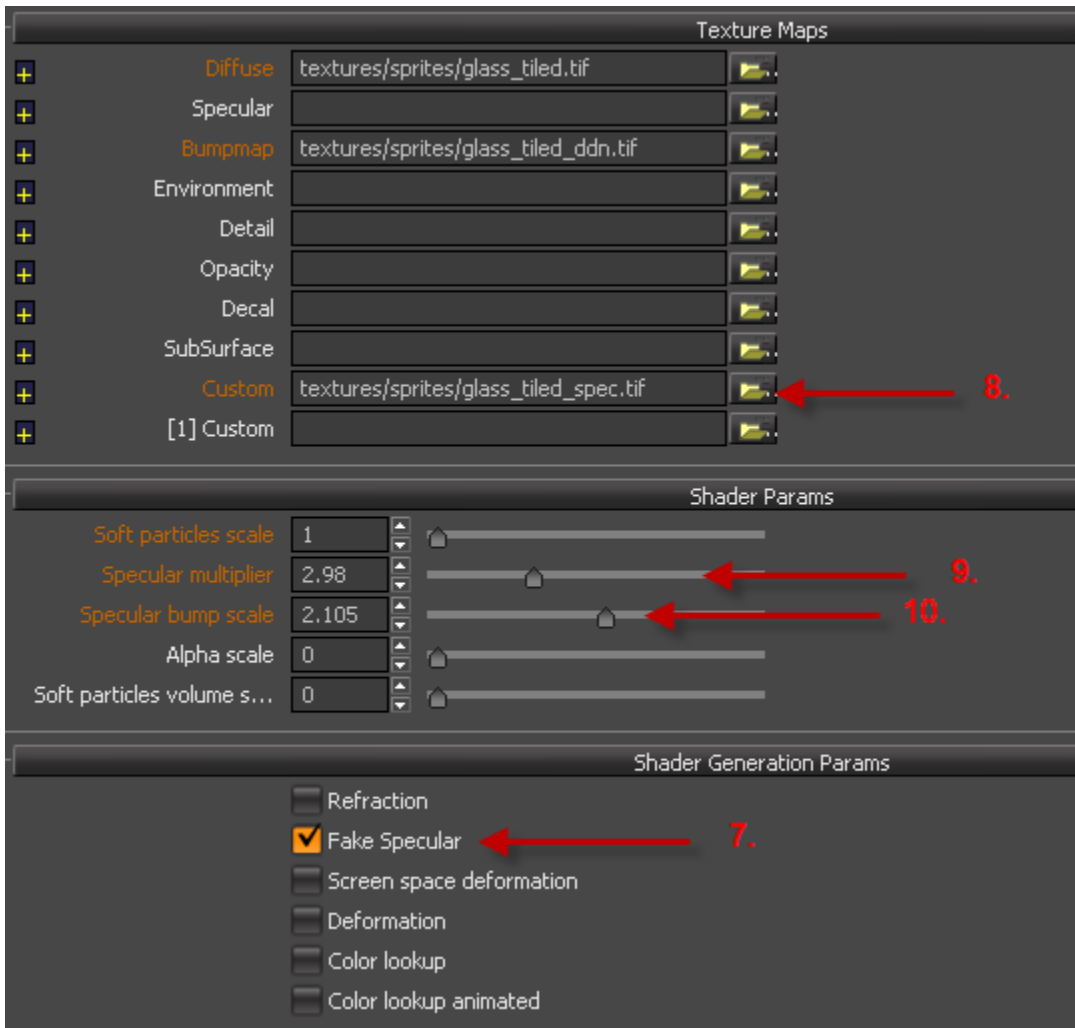


4. **Refraction**: enables particle refraction, which is useful to simulate heat haze coming from fire or any heat source or for some specific visual effect look. This increases the rendering cost slightly, so it should be used sparingly.

5. When the refraction option is used, users should ensure that they are using a normal map also for deformation.

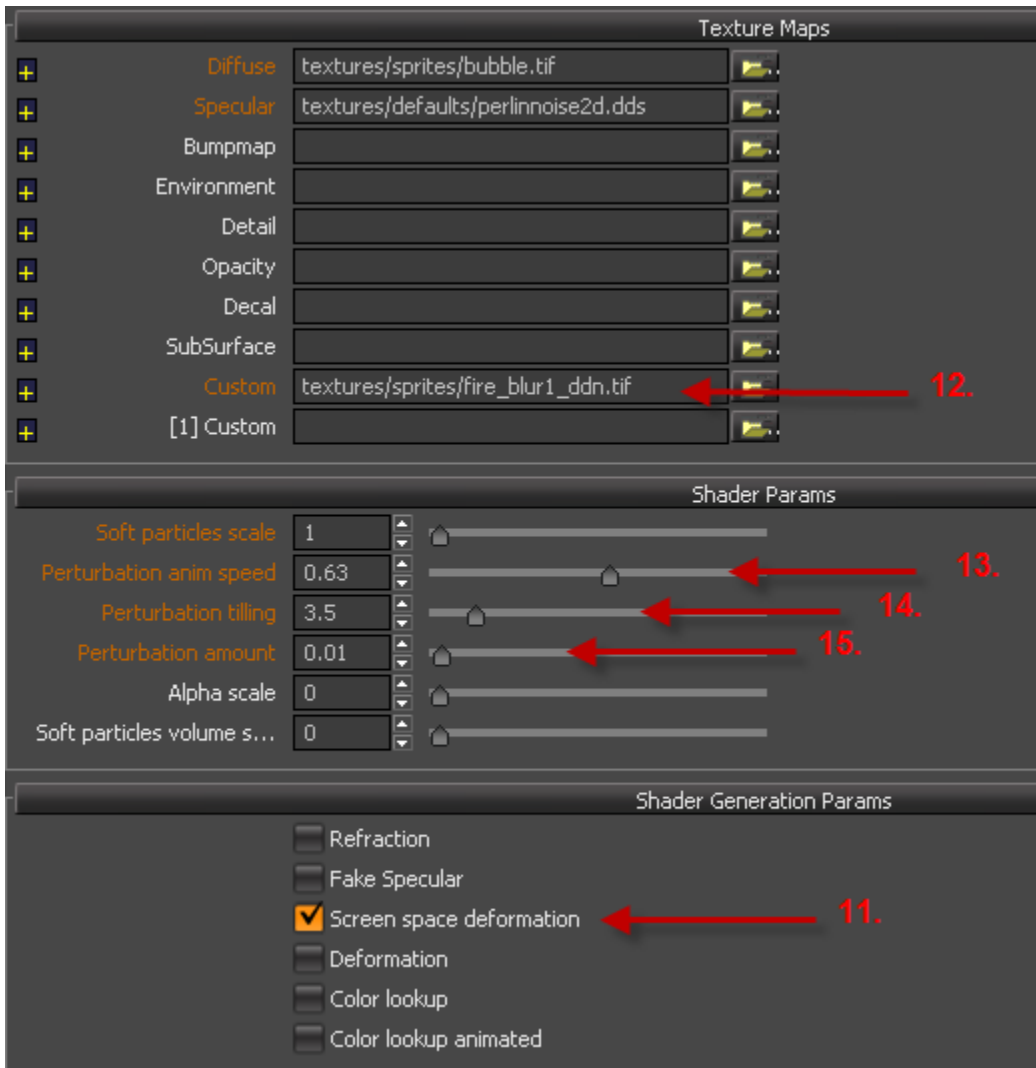
6. **Refraction Bump Scale**: when the refraction option is enabled, users can use this scale for controlling the amount of deformation on refractions.

## Fake Specular



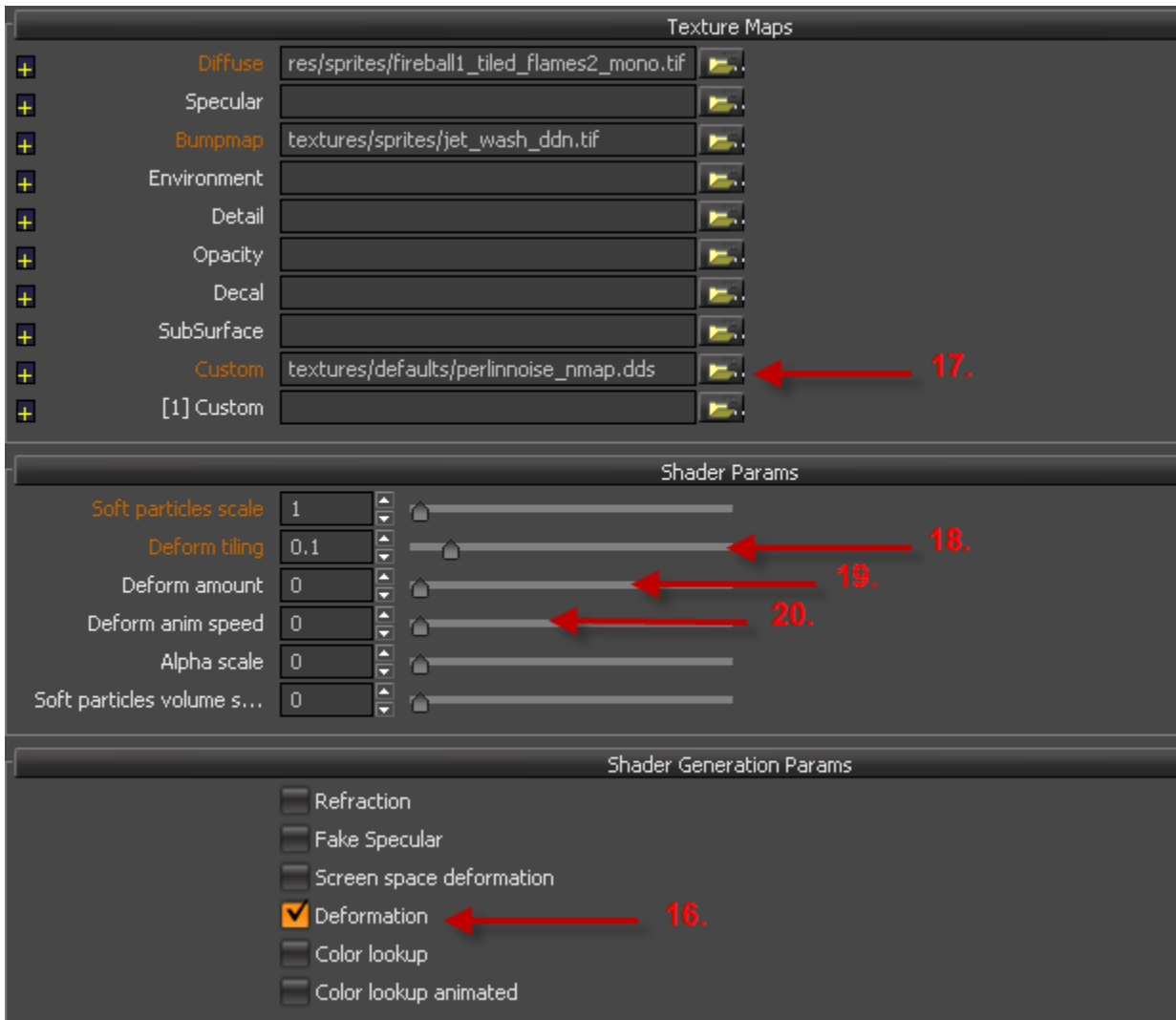
7. **Fake Specular:** simulate specular highlights by using reflection map - for developmental reasons the reflection map is specified in the Custom slot.
8. When Fake Specular is used, specify the reflection map in the "**Custom**" slot.
9. **Specular Multiplier:** scale for controlling the Fake Specular amount.
10. **Specular Bump Scale:** scale used to control the amount of deformation (when the normal map slot is used) applied to Fake Specular highlights.

## Screen Space Deformation



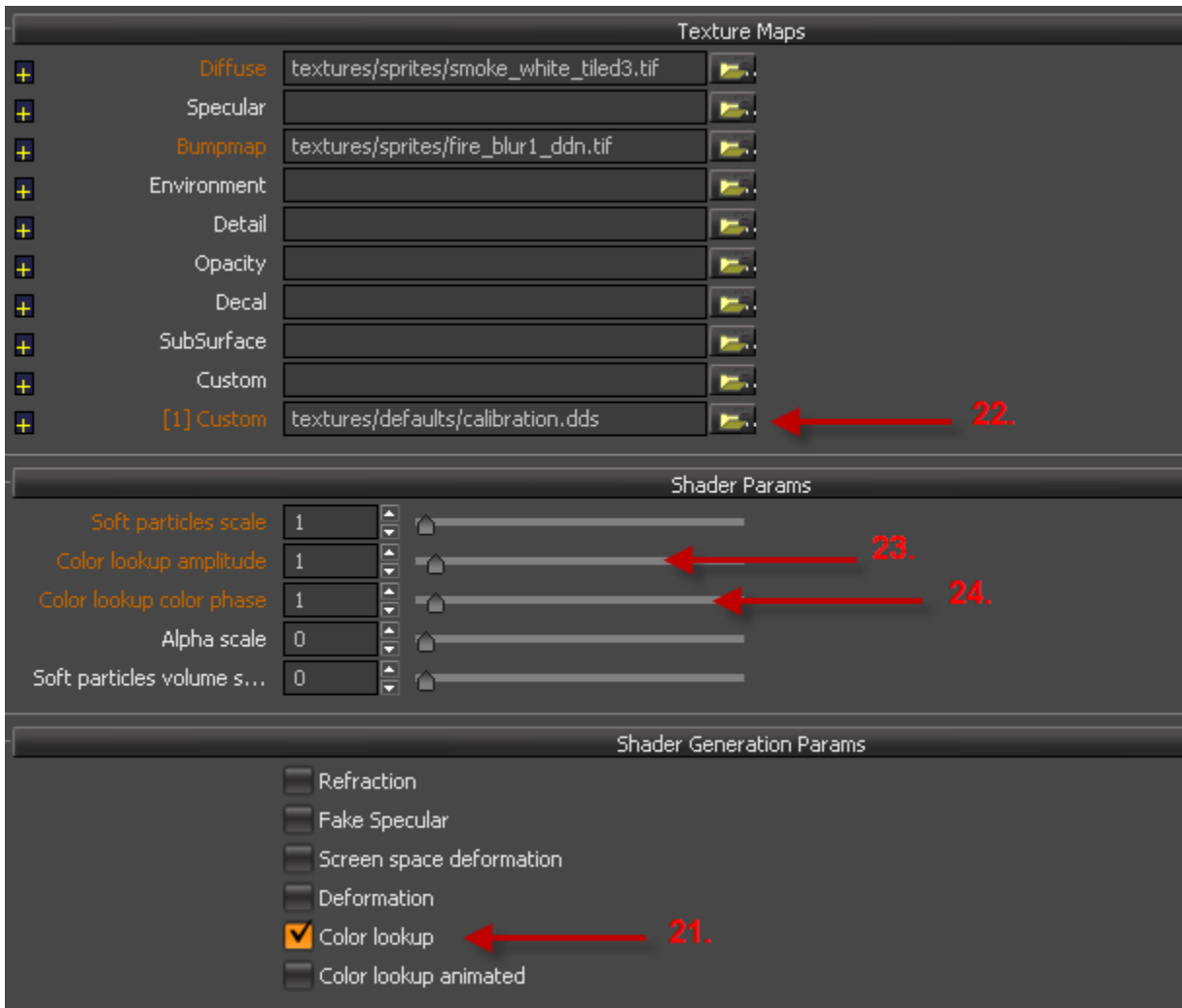
11. **Screen Space Deformation (SSD):** deforms particles in screen space (screen aligned deformation).
12. When Screen Space Deformation used, set the normal map to be used as deformation map in the "Custom" slot.
13. **Perturbation anim speed:** this parameter is used for SSD, it controls animation translation speed/frequency applied to the deformation map.
14. **Perturbation tiling:** another parameter used for SSD, for controlling the tiling amount of deformation.
15. **Perturbation amount:** used for SSD, this multiplier controls the amount of deformation used.

## Deformation



16. **Deformation:** unlike SSD, where deformation is done screen aligned, this type of deformation is done in the particle UV space.  
 17. When deformation option is used, set normal map to be used as deformation map in the **Custom** slot.  
 18. **Deform Tiling:** controls deformation tiling.  
 19. **Deform Amount:** controls deformation multiplier.  
 20. **Deform Anim Speed:** control for deformation animation translation speed/frequency.

## Color Lookup



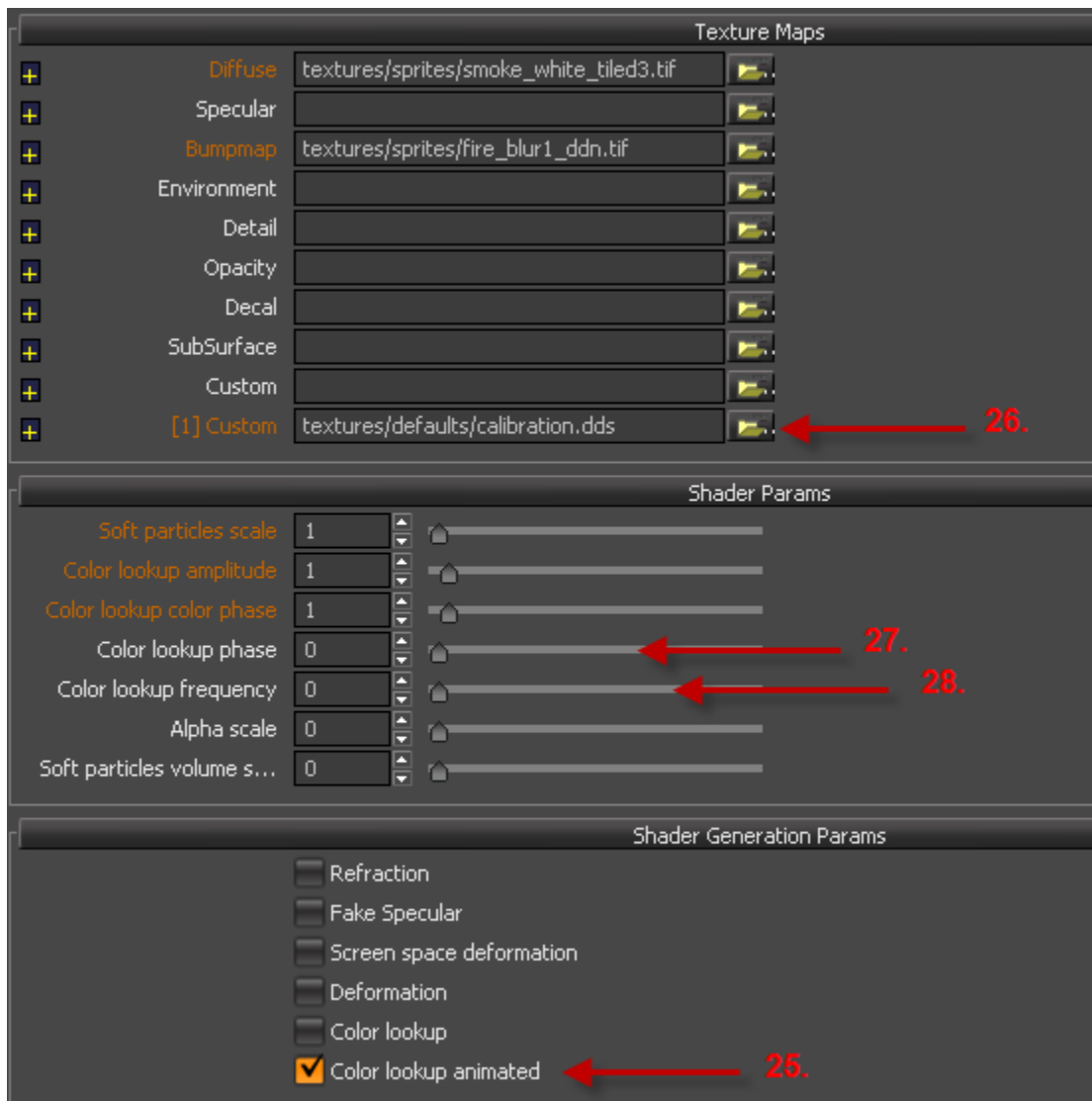
21. **Color Lookup:** allows users to use a color lookup texture to have color gradient variation for the same particle effect. This is useful in particular to save video memory as users can for example have grayscale diffuse map and use color lookup texture to get colors.

22. When color lookup is used, set the lookup gradient texture in the **Custom Slot 1**.

23. **Color Lookup Amplitude:** sets color lookup amplitude/multiplier (how bright it will look).

24. **Color Lookup Color Phase:** sets the per-pixel (therefore per-color) phase to be used. Users can use this parameter to set a different range of colors coming from the gradient texture lookup.

## Color Lookup Animated



25. **Color Lookup Animated:** same as color lookup, but uses periodic (tilable) function for animation. Also uses parameters 23 and 24.  
 26. When color lookup is used, set the lookup gradient texture in **Custom Slot 1**.  
 27. **Color Lookup phase:** sets per-particle color phase to be used for the color lookup.  
 28. **Color Lookup Frequency:** sets speed/frequency at which animation plays.