

# MTL Files

## Material Definitions for OBJ Files

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**MTL** is a data directory which contains examples of MTL files. An MTL file is an auxiliary file containing definitions of materials that may be accessed by an OBJ file. The OBJ file must specify the name of the MTL file by a command such as

```
mtllib file_name
```

It is presumed that the MTL file names and defines various materials, such as, perhaps, "shinyred" or "iron". Then, within the OBJ file, the command

```
usemtl shinyred
```

indicates that all subsequent faces should be rendered with this material, until a new material is invoked.

An MTL file contains a sequence of definitions of materials. Each definition begins with a **newmtl** statement that defines the name of the material, followed by lines specifying particular properties.

### Example MTL File:

```
newmtl shinyred
Ka 0.1986 0.0000 0.0000
Kd 0.5922 0.0166 0.0000
Ks 0.5974 0.2084 0.2084
illum 2
Ns 100.2237
```

### MTL File Characteristics:

- ASCII;

Comments begin with a '#' character in column 1. Blank lines may be inserted for clarity. Otherwise, the file consists of a sequence of **newmtl** statements, followed by a definition of various properties for that material.

The quantities that may be defined for a material include:

**Ka** *r g b*

defines the ambient color of the material to be (r,g,b). The default is (0.2,0.2,0.2);

**Kd** *r g b*

defines the diffuse color of the material to be (r,g,b). The default is (0.8,0.8,0.8);

**Ks** *r g b*

defines the specular color of the material to be (r,g,b). This color shows up in highlights. The default is (1.0,1.0,1.0);

**d** *alpha*

defines the non-transparency of the material to be alpha. The default is 1.0 (not transparent at all). The quantities **d** and **Tr** are the opposites of each other, and specifying transparency or nontransparency is simply a matter of user convenience.

**Tr** *alpha*

defines the transparency of the material to be alpha. The default is 0.0 (not transparent at all). The quantities **d** and **Tr** are the opposites of each other, and specifying transparency or nontransparency is simply a matter of user convenience.

**Ns** *s*

defines the shininess of the material to be s. The default is 0.0;

**illum** *n*

denotes the illumination model used by the material. **illum** = 1 indicates a flat material with no specular highlights, so the value of **Ks** is not used. **illum** = 2 denotes the presence of specular highlights, and so a specification for **Ks** is required.

**map\_****Ka** *filename*

names a file containing a texture map, which should just be an ASCII dump of RGB values;

### Licensing:

The computer code and data files described and made available on this web page are distributed under [the GNU LGPL license](#).

### Reference:

1. [The Alias Wavefront website](#).

### Sample Files:

- [primary.mtl](#), defines simple primary color materials;
- [example.mtl](#), defines three materials;

You can go up one level to [the DATA page](#).

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