photobiologyFilters Version 0.1.12
Catalogue of filters

Pedro J. Aphalo

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Contents

1 Introduction

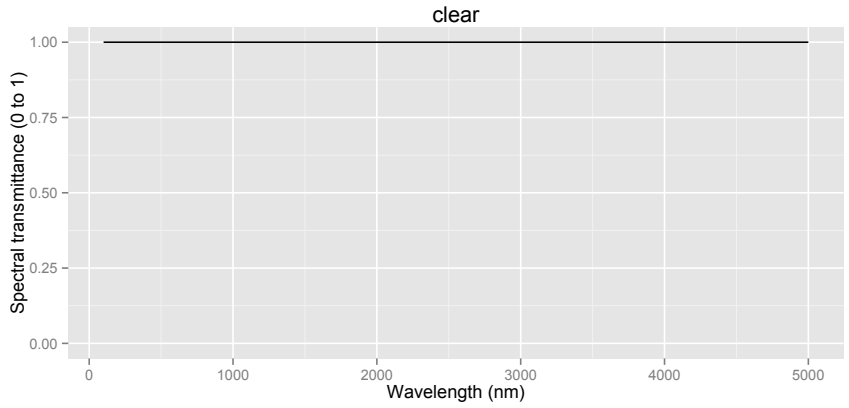
```
library(ggplot2)
library(photobiologyFilters)
library(photobiologygg)
```

```r
filter.plotter <- function(filter_name, w.low=280, w.high=1100,
                           ylab="Spectral transmittance (0 to 1)"){
fig_linear <-
  ggplot(aes(x=w.length, y=Tfr), data=get(paste(filter_name, ".spct", sep=""))) +
  labs(x="Wavelength (nm)", y=ylab, title=filter_name) + ylim(0,1) +
  geom_line()
# fig_log <- fig_linear + scale_y_log10(limits=c(1e-5,30))
print(fig_linear +
      stat_peaks(span=71, ignore_threshold=0.25, colour="red", hjust=0, angle=90) +
      stat_valleys(span=51, ignore_threshold=-0.5, colour="blue", hjust=0, angle=90))
# print(fig_log)
}
```

2 Dummy filters

2.1 Perfectly clear filter

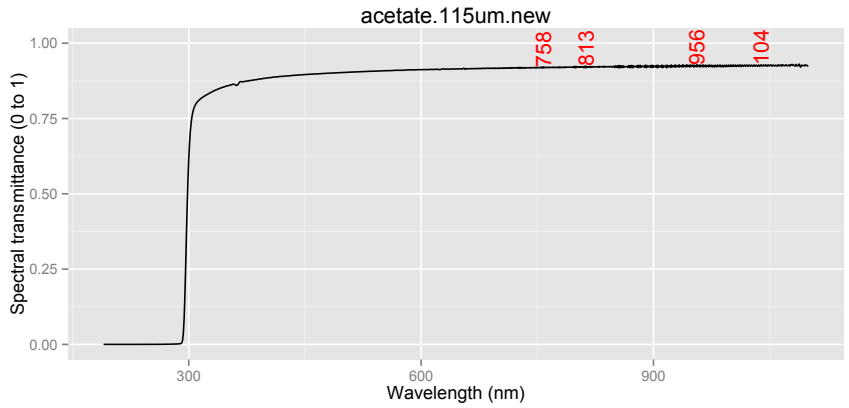
```
filter.plotter("clear")
```

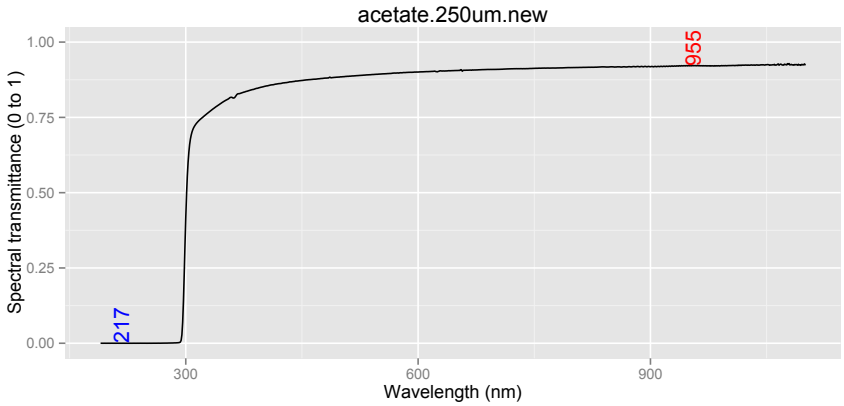


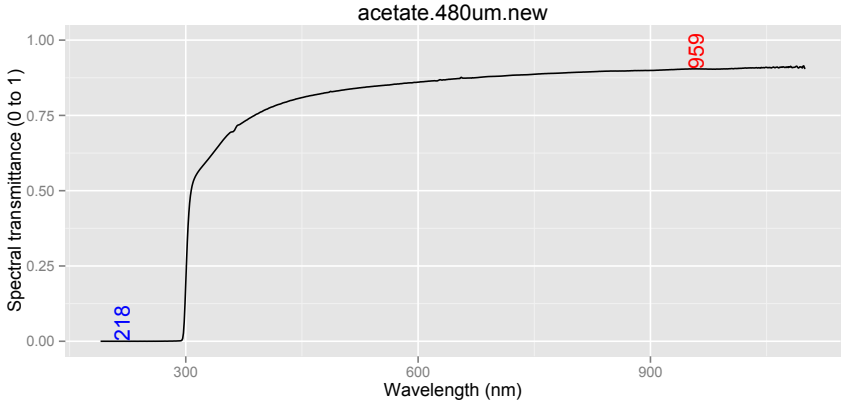
3 Plastic films

3.1 Cellulose diacetate

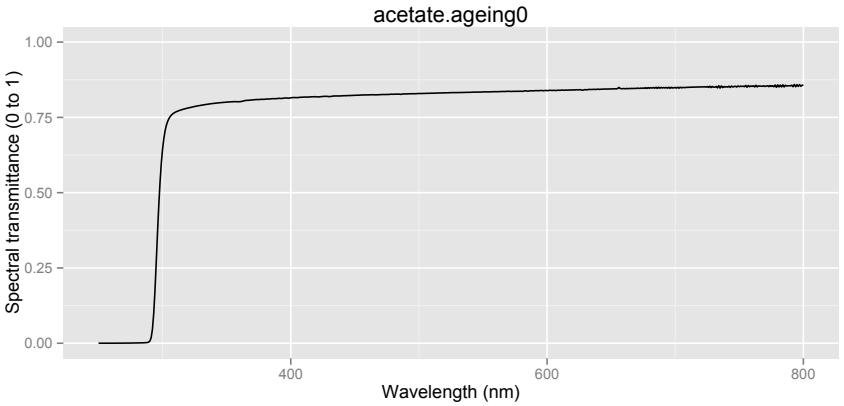
```
for (filter in c("acetate.115um.new", "acetate.250um.new", "acetate.480um.new")) {
  filter.plotter(filter)
}
```

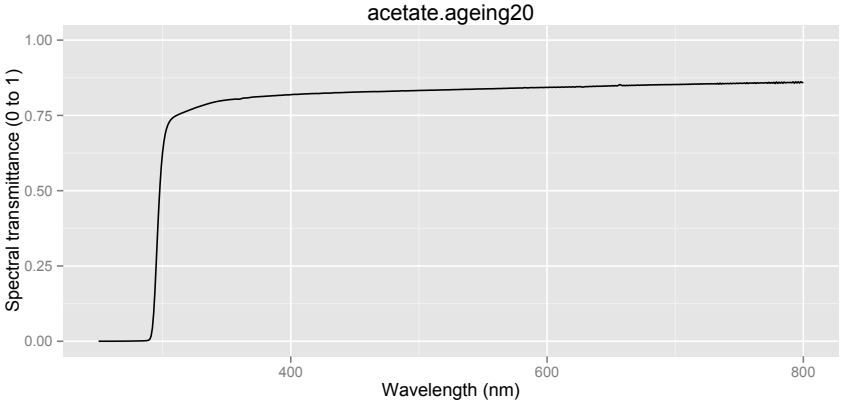


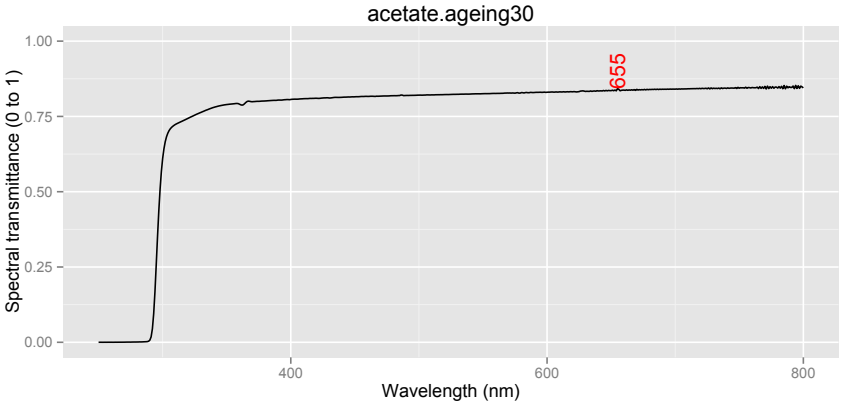


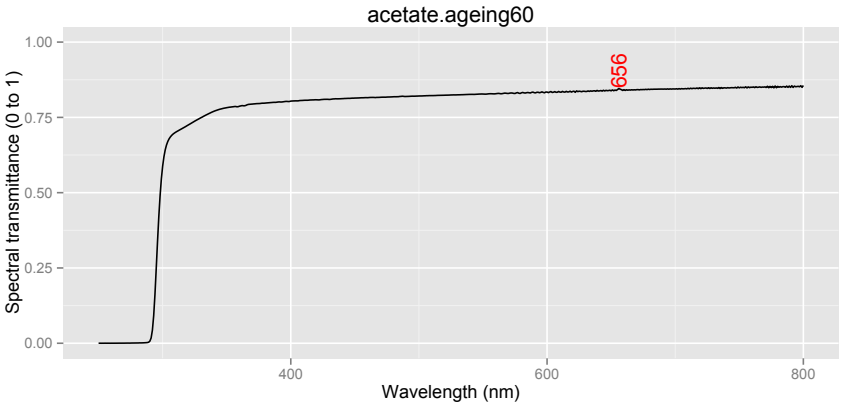


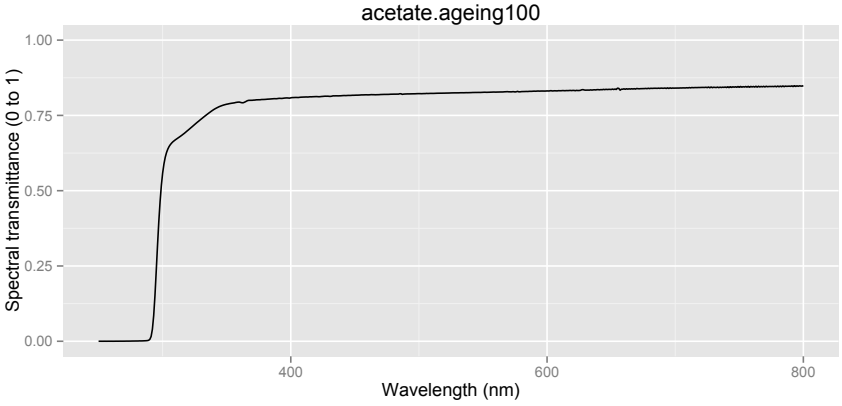

```
for (filter in c("acetate.ageing0", "acetate.ageing20", "acetate.ageing30",
                 "acetate.ageing60", "acetate.ageing100", "acetate.ageing180",
                 "acetate.ageing300")) {
  filter.plotter(filter)
}
```

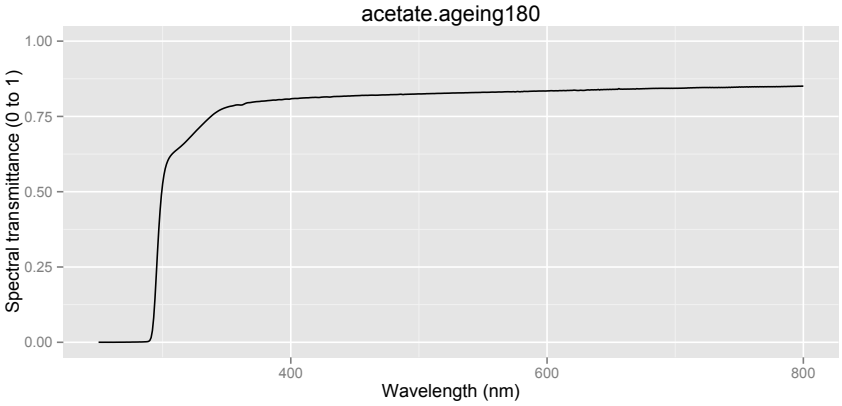

acetate.ageing0
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)

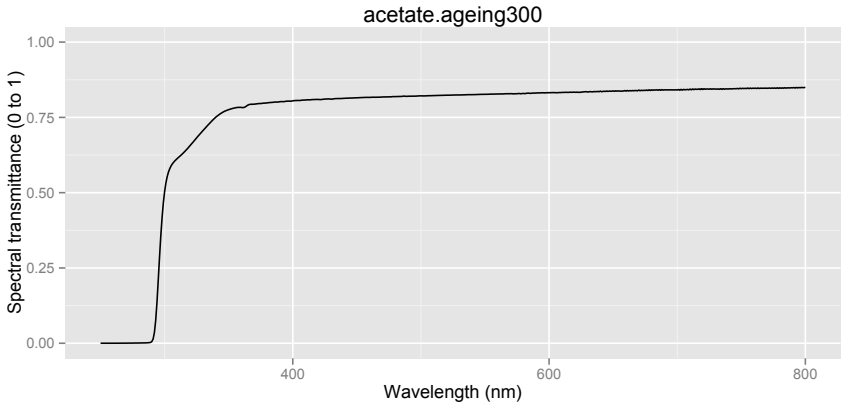

acetate.ageing20
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)


acetate.ageing30
655
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)


acetate.ageing60
656
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)

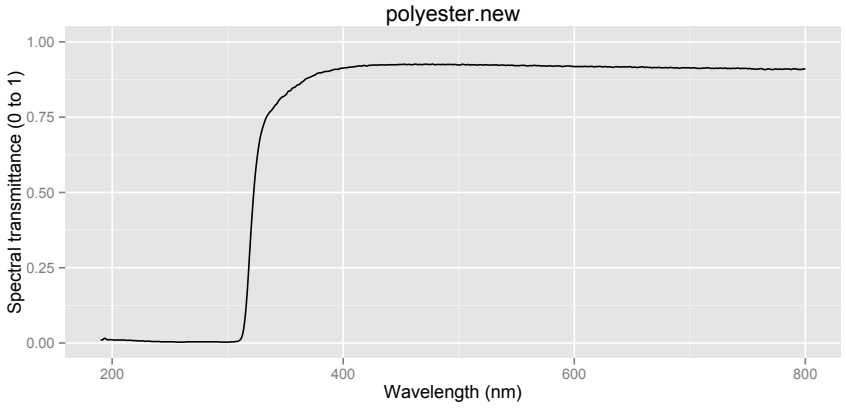

acetate.ageing100
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)


acetate.ageing180
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
400
600
800
Wavelength (nm)



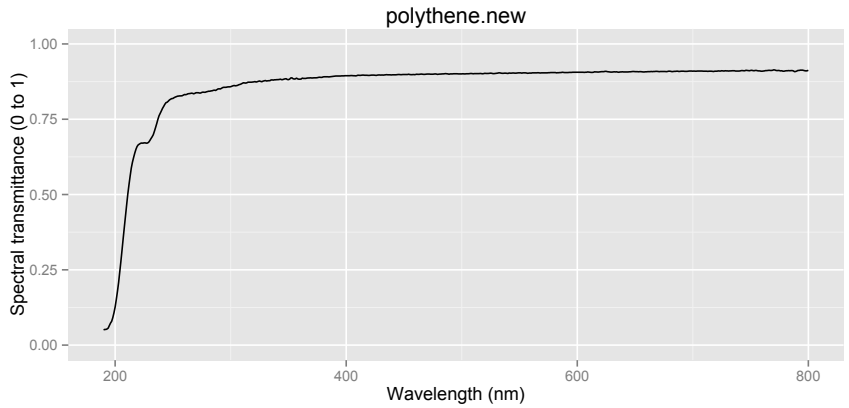
3.2 Polyester

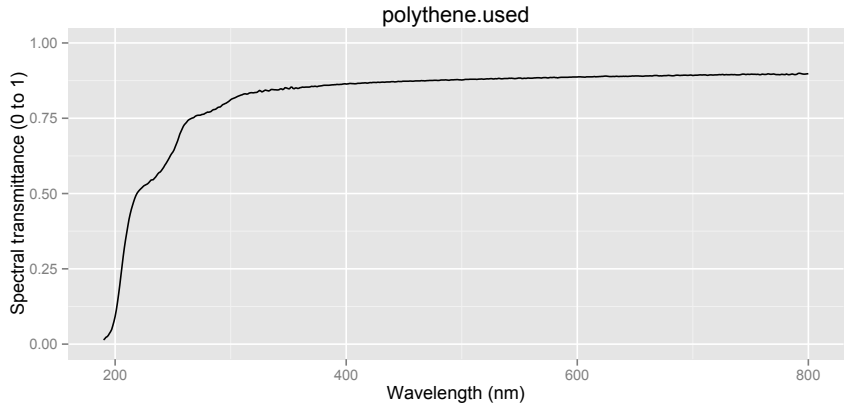
```
filter.plotter("polyester.new")
```



3.3 Polythene

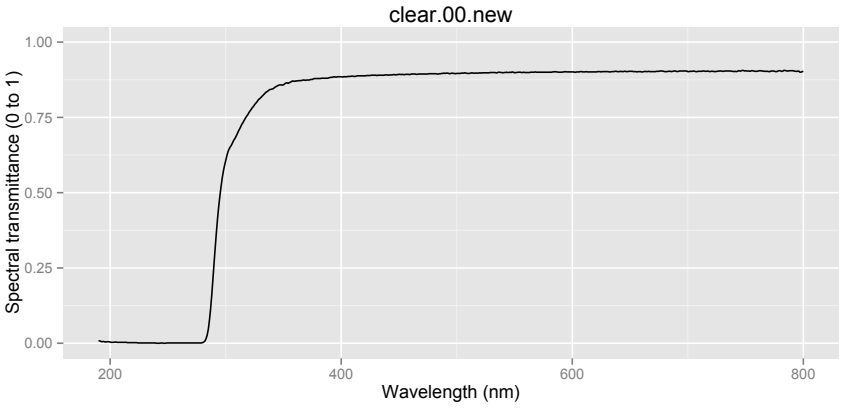
```
filter.plotter("polythene.new")
filter.plotter("polythene.used")
```

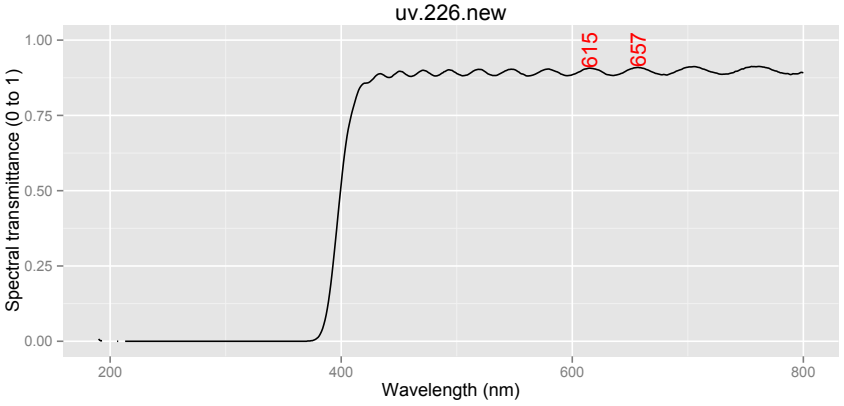


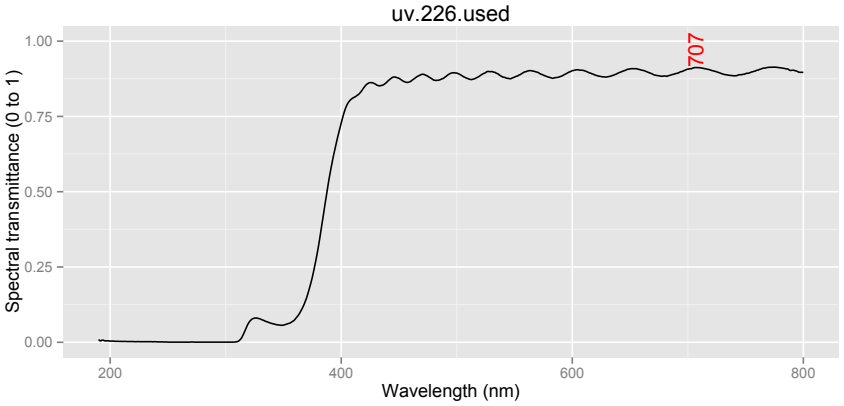


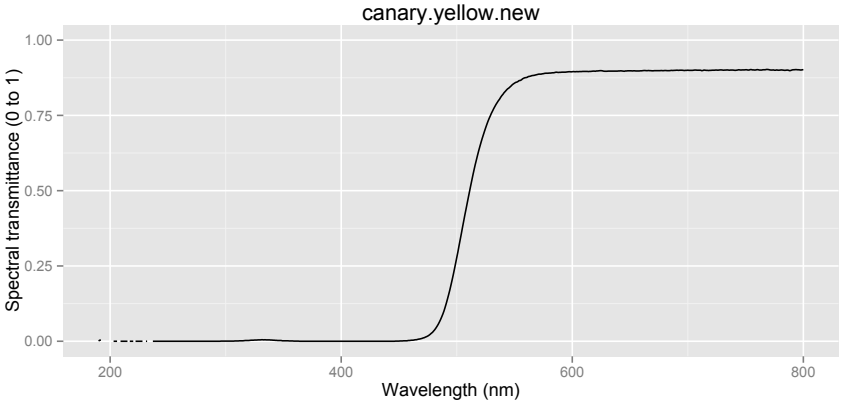
3.4 Rosco theatrical filters

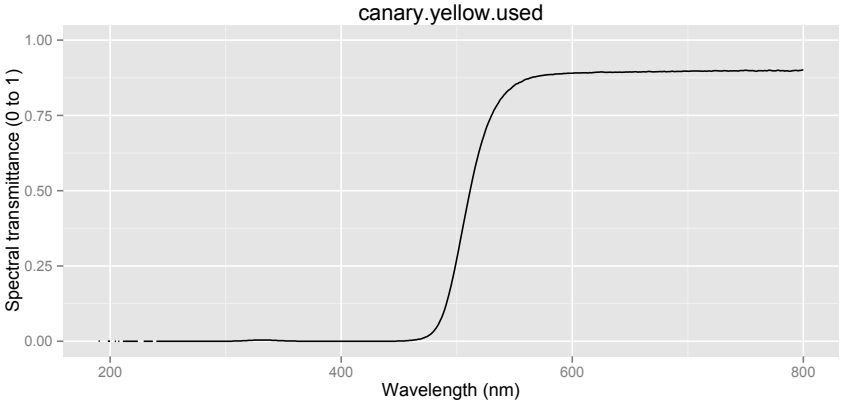
```
for (filter in c("clear.00.new", "uv.226.new", "uv.226.used", "canary.yellow.new",
                 "canary.yellow.used", "rose.pink.new", "neon.pink.used",
                 "moss.green.new", "moss.green.used")) {
  filter.plotter(filter)
}
```


clear.00.new
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
200
400
600
800
Wavelength (nm)

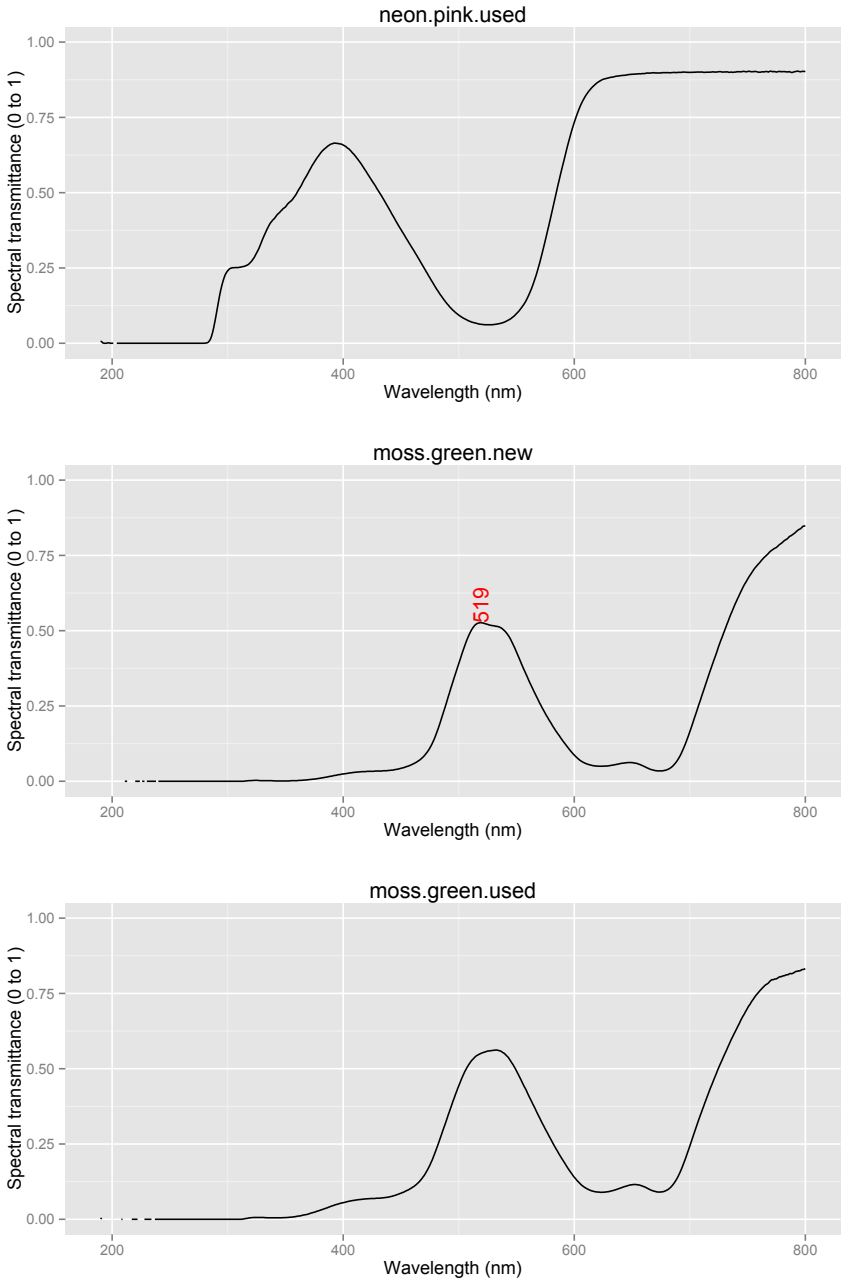

uv.226.new
615
657
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
200
400
600
800
Wavelength (nm)


uv.226.used
707
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
200
400
600
800
Wavelength (nm)


canary.yellow.new
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
200
400
600
800
Wavelength (nm)

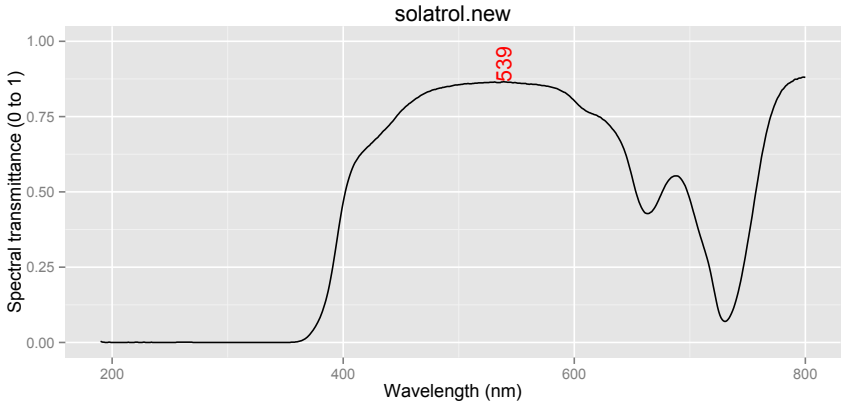

canary.yellow.used
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
200
400
600
800
Wavelength (nm)

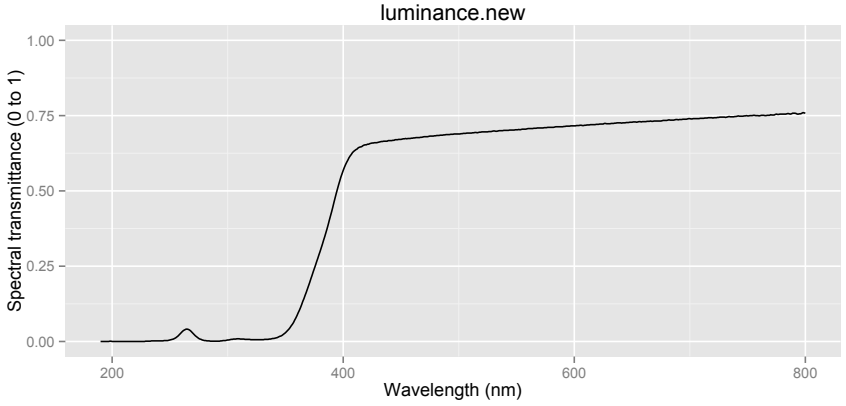

rose.pink.new
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
426
200
400
600
800
Wavelength (nm)



3.5 Commercial greenhouse films from BPI Agri Visqueen

```r
for (filter in c("solatrol.new", "luminance.new")) {
  filter.plotter(filter)
}
```

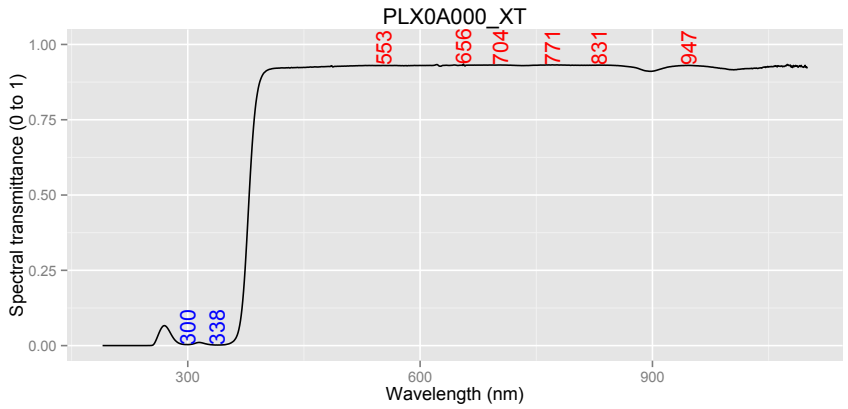


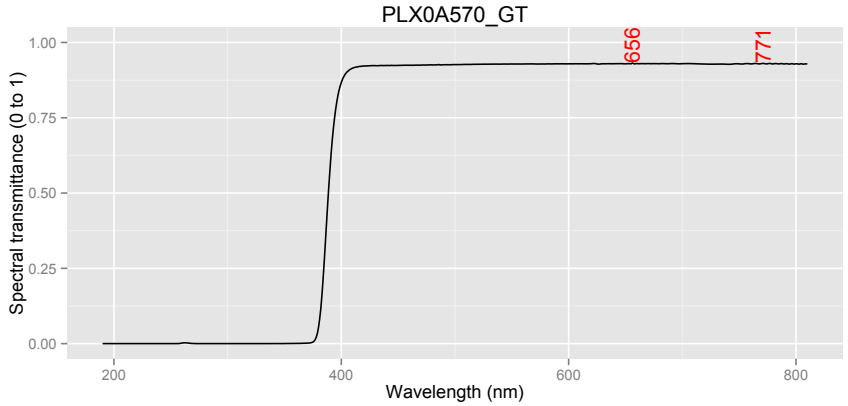


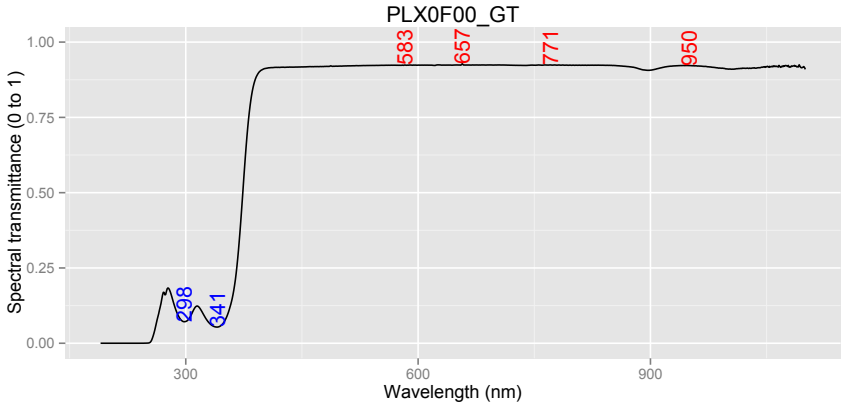
4 Plastic sheets

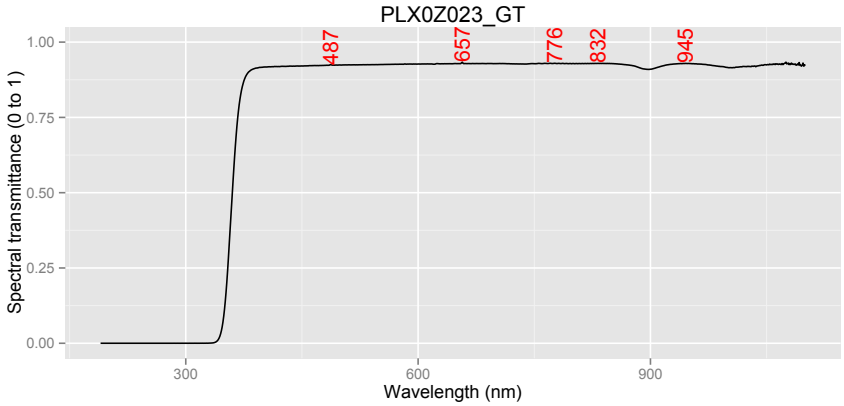
4.1 Plexiglas

```
for (filter in c("PLX0A000_XT", "PLX0A570_GT", "PLX0F00_GT", "PLX0Z023_GT")) {
  filter.plotter(filter)
}
```

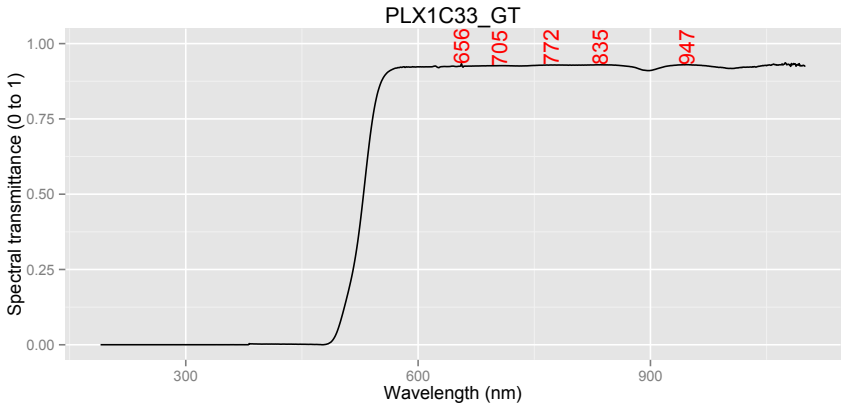


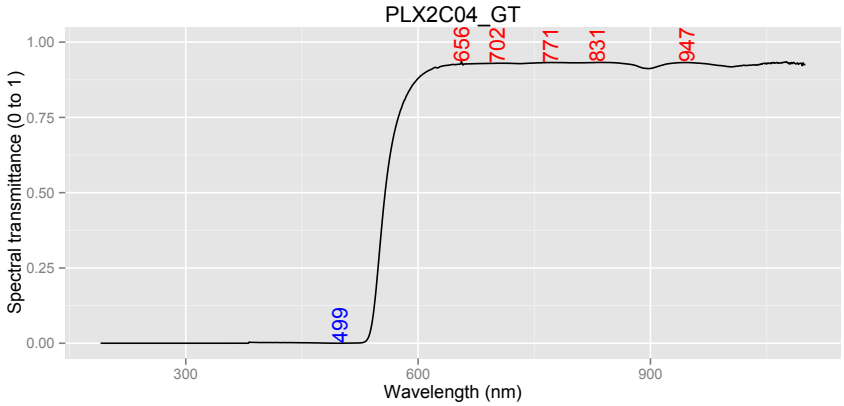


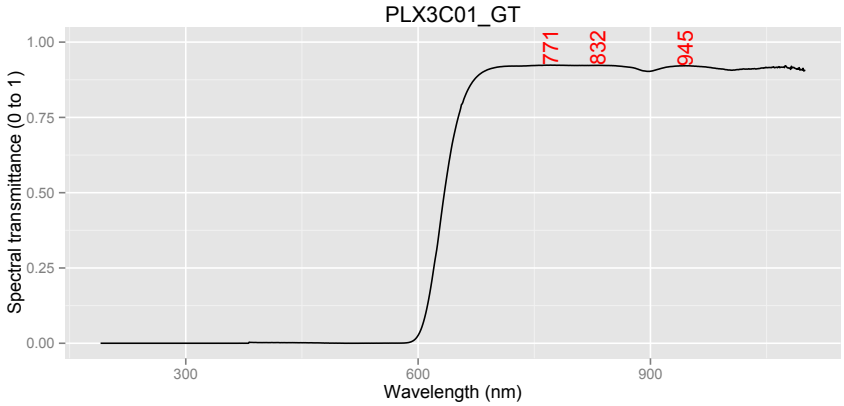


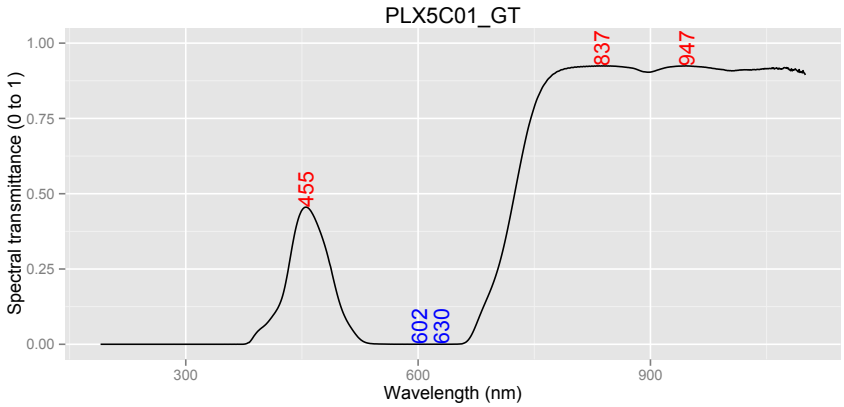



```
for (filter in c("PLX1C33_GT", "PLX2C04_GT", "PLX3C01_GT", "PLX5C01_GT")) {
  filter.plotter(filter)
}
```



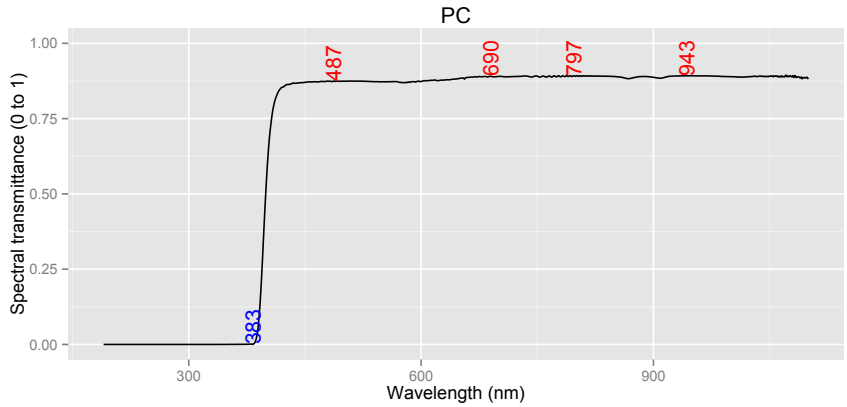


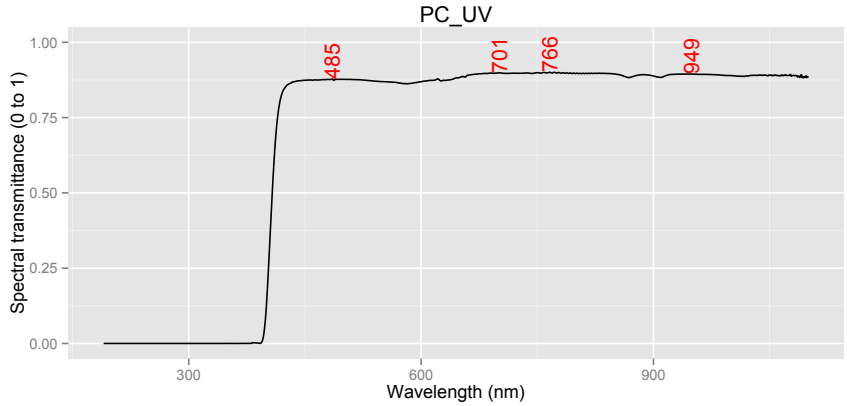




4.2 Polycarbonate

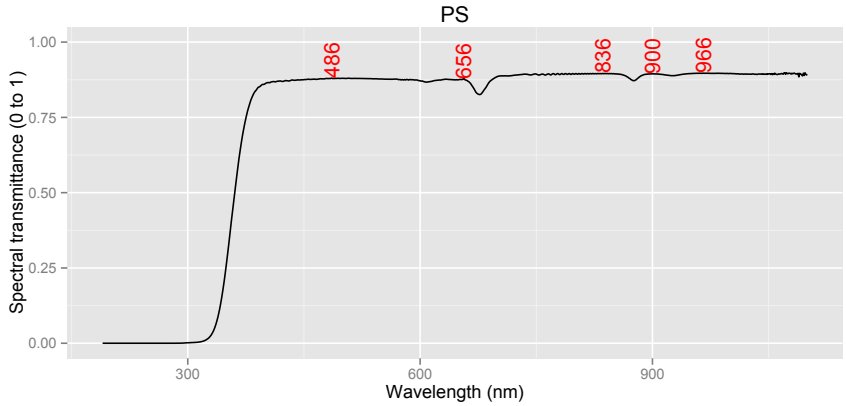
```
for (filter in c("PC", "PC_UV")) {
  filter.plotter(filter)
}
```





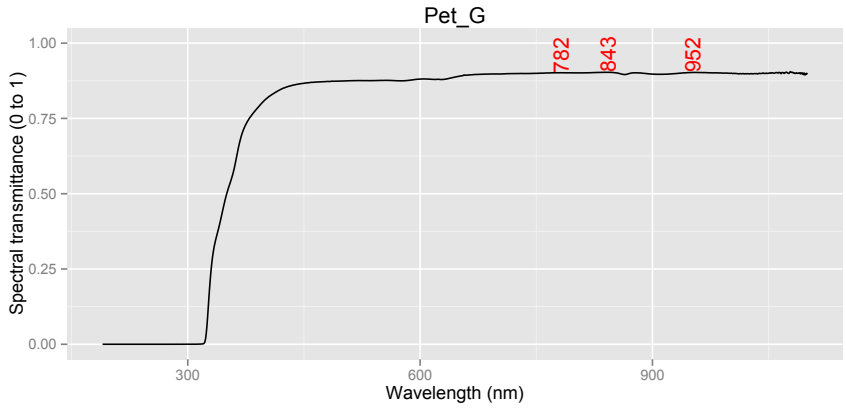
4.3 Polyestyrene

```
for (filter in c("PS")) {
  filter.plotter(filter)
}
```



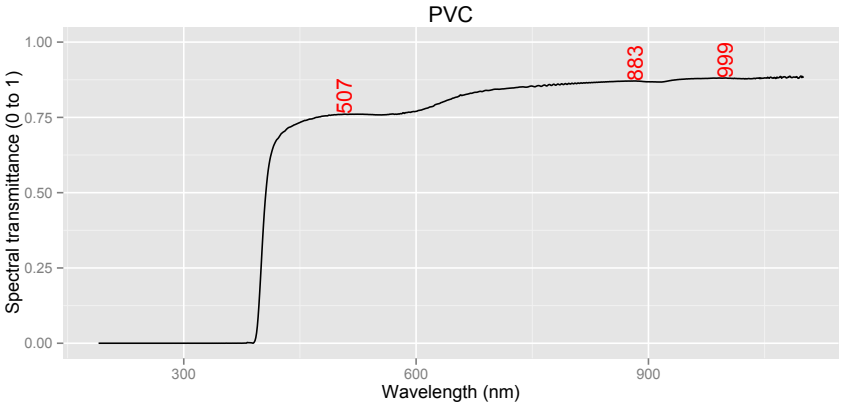
4.4 Polyester

```
for (filter in c("Pet_G")) {
  filter.plotter(filter)
}
```



4.5 Polyvinilchloride

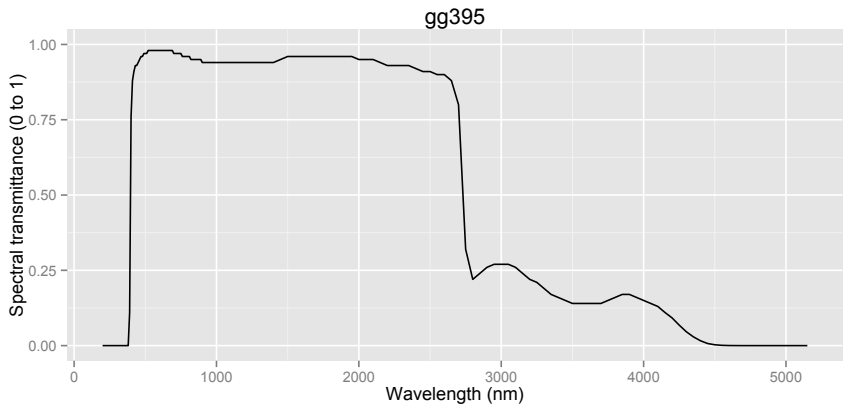
```
for (filter in c("PVC")) {
  filter.plotter(filter)
}
```

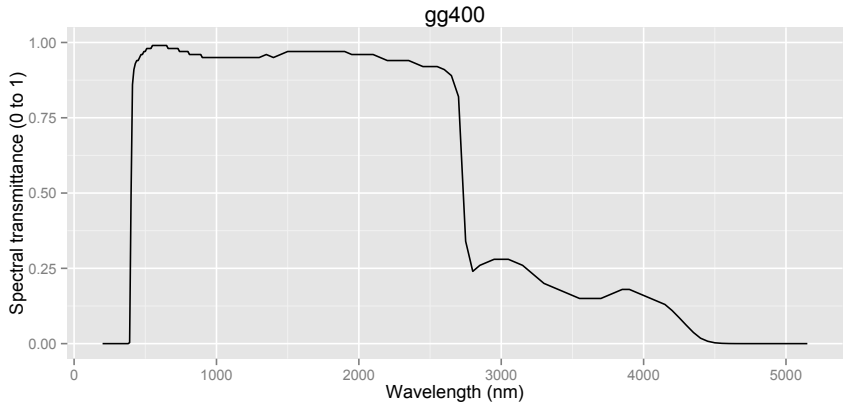

PVC
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
507
883
999
300
600
900
Wavelength (nm)

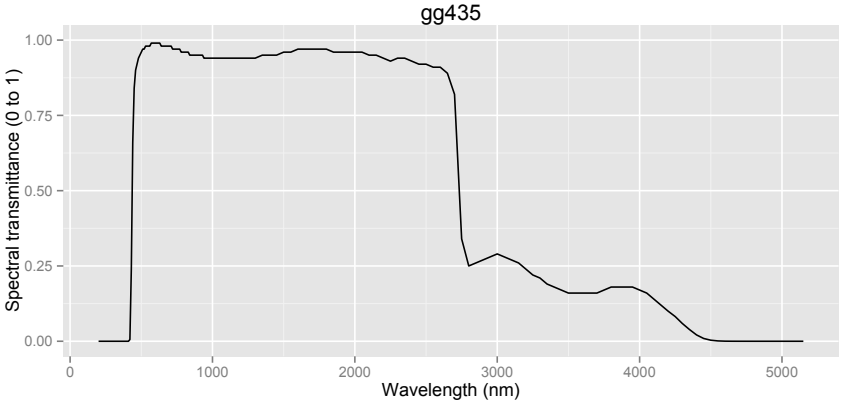
5 Optical glass filters

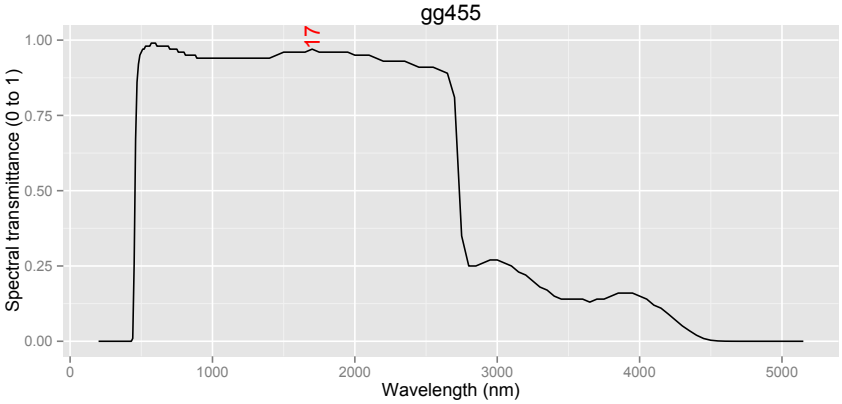
5.1 Schott long-pass filters

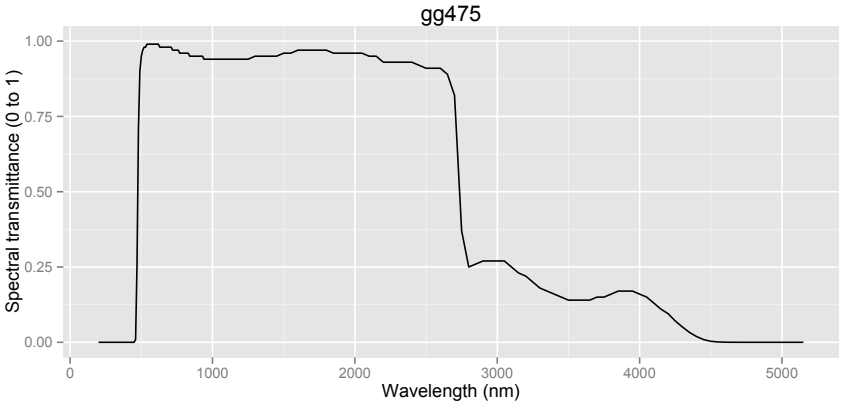
```
for (filter in c("gg395", "gg400", "gg435", "gg455", "gg475", "gg495")) {
  filter.plotter(filter)
}
```

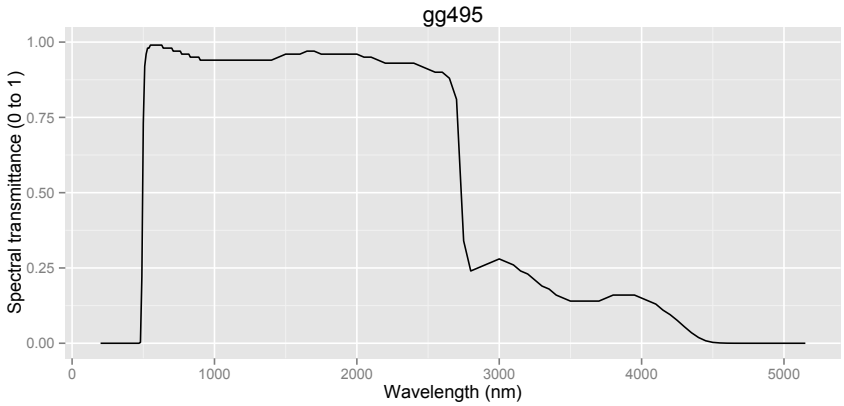




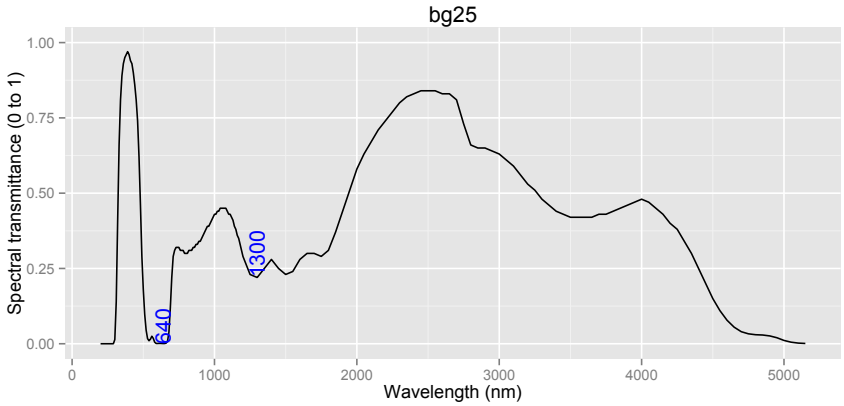

gg435
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

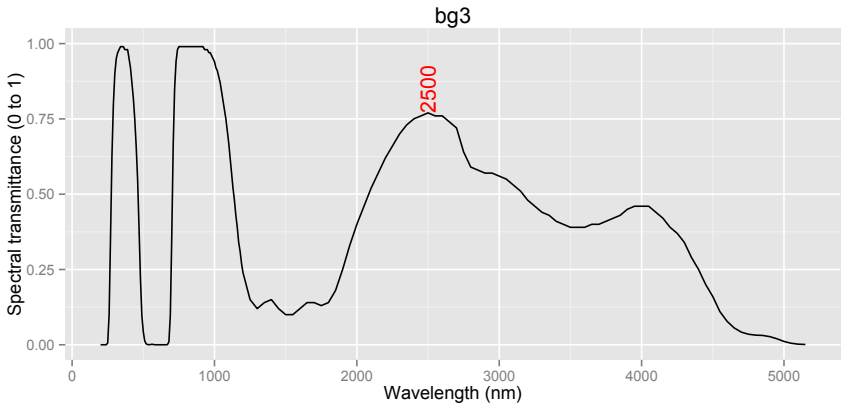

gg455
17
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

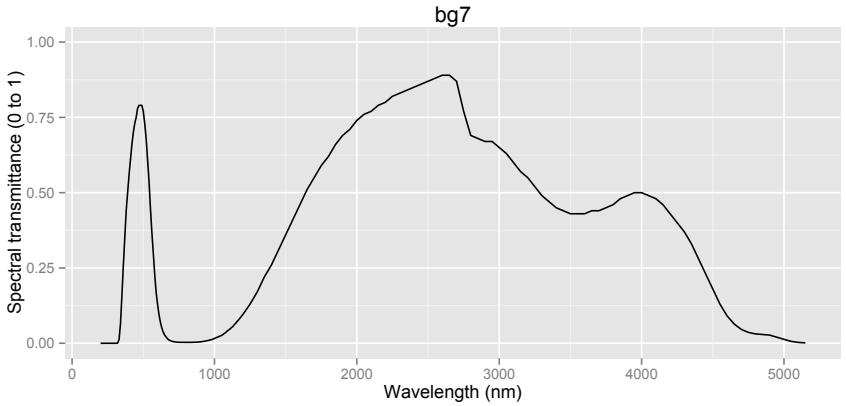

gg475
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)



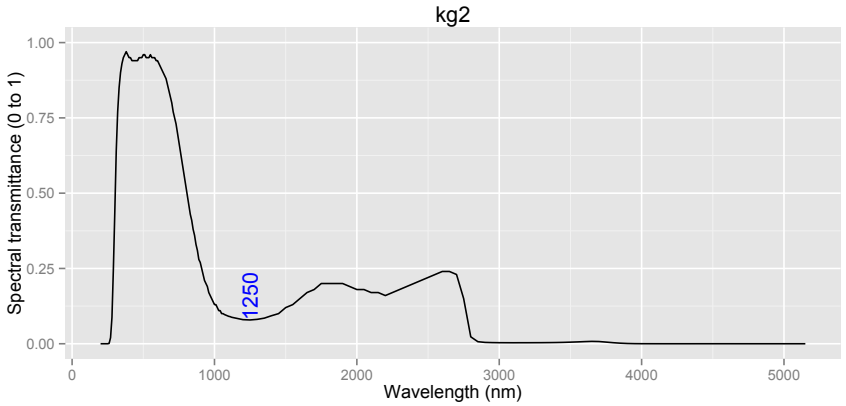

```
for (filter in c("bg25", "bg3", "bg7")) {
  filter.plotter(filter)
}
```

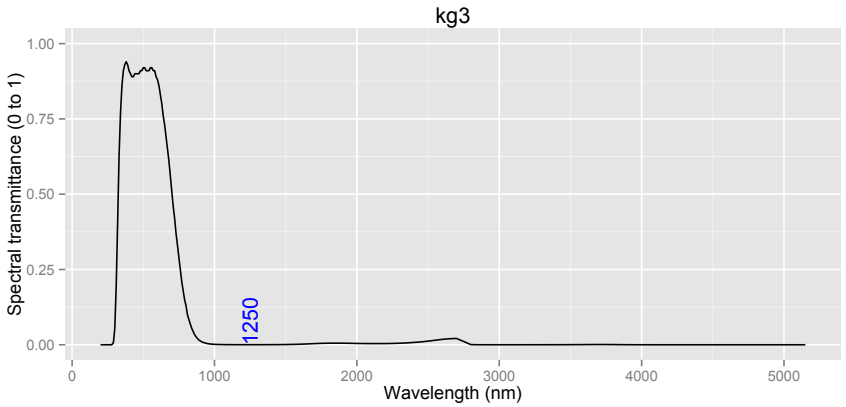


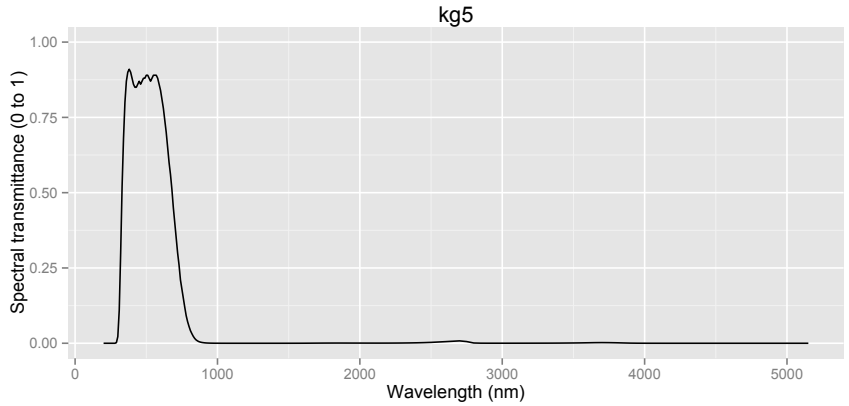




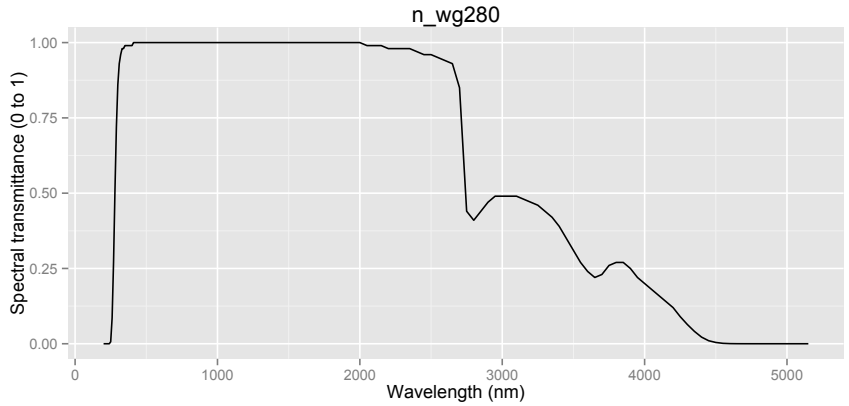

```
for (filter in c("kg2", "kg3", "kg5")) {
  filter.plotter(filter)
}
```

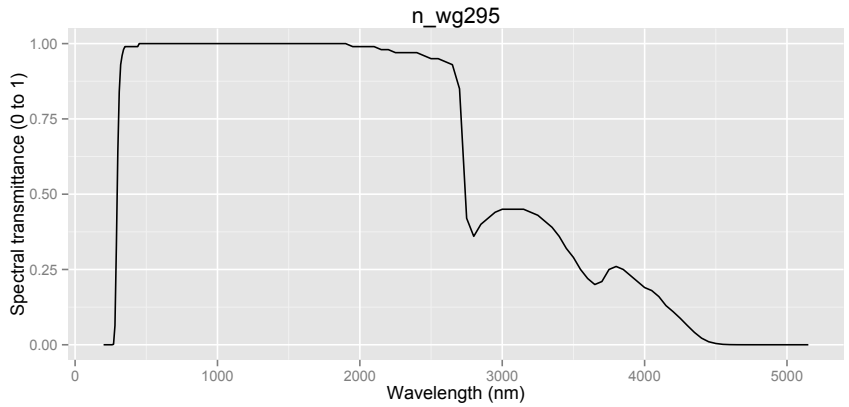


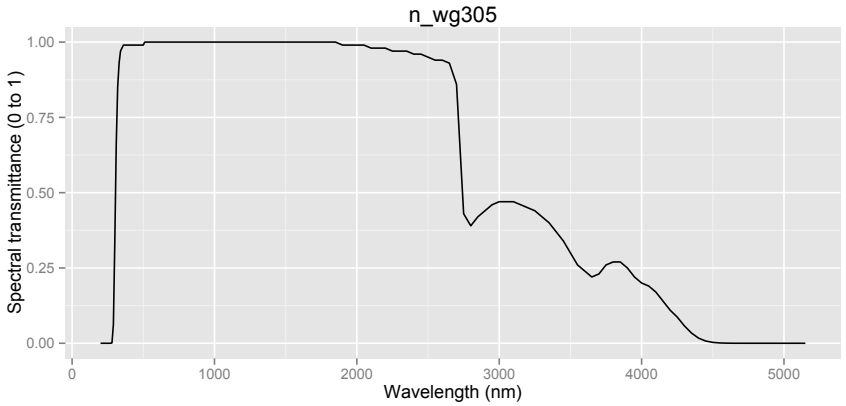


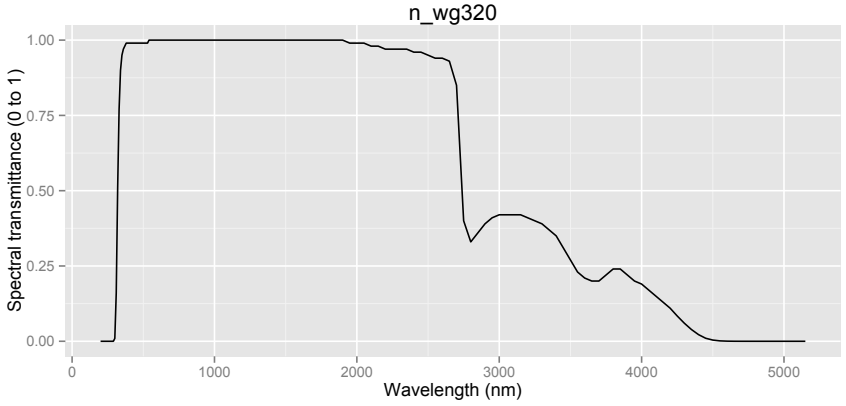



```
for (filter in c("n_wg280", "n_wg295", "n_wg305", "n_wg320")) {
  filter.plotter(filter)
}
```

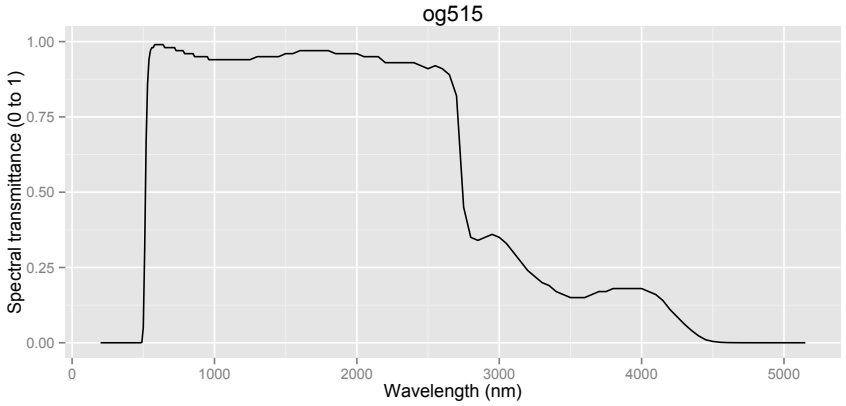


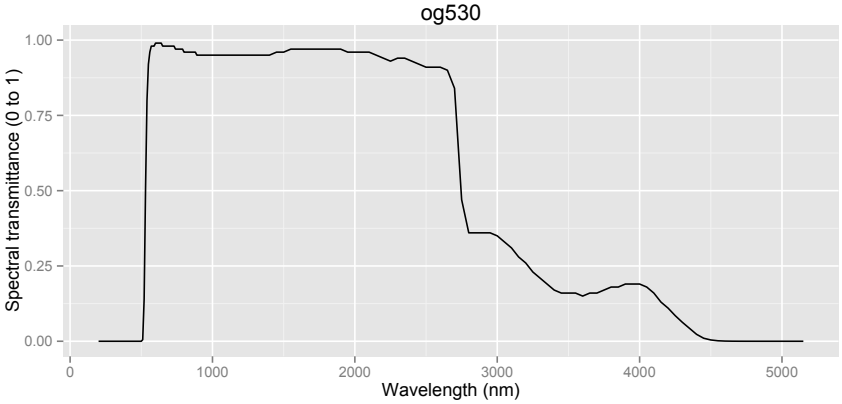


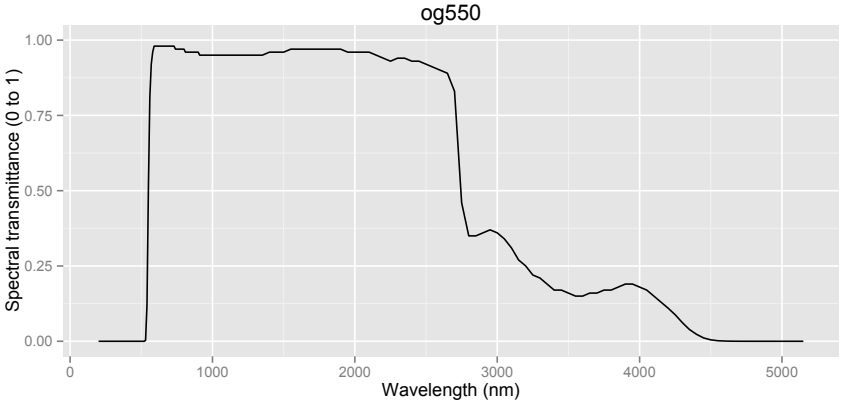


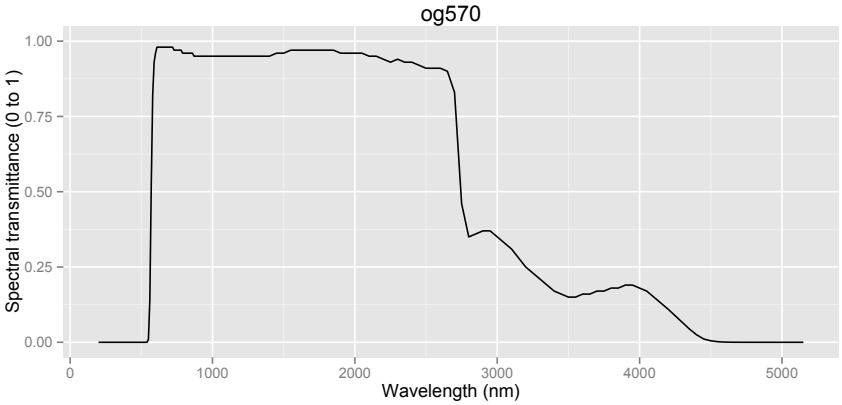


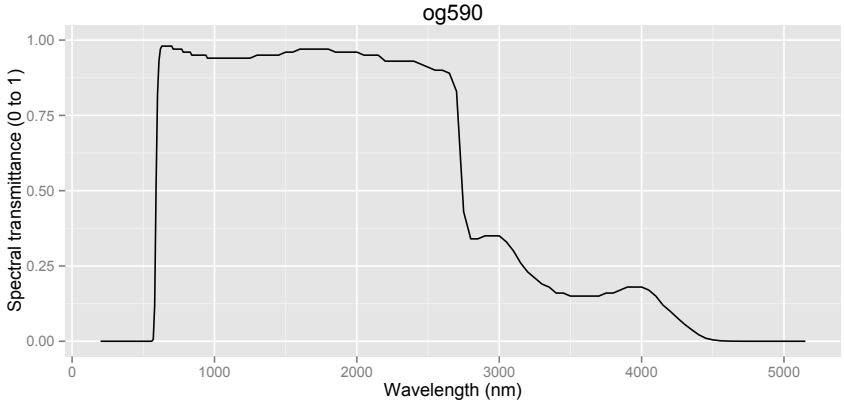

```
for (filter in c("og515", "og530", "og550", "og570", "og590")) {
  filter.plotter(filter)
}
```



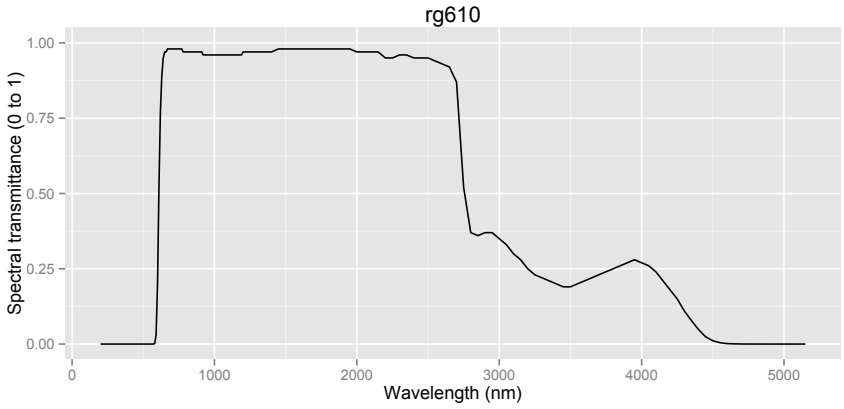

og530
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

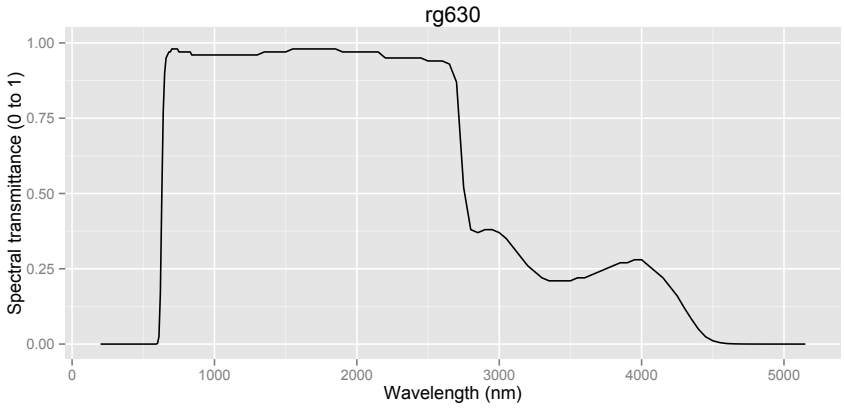

og550
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

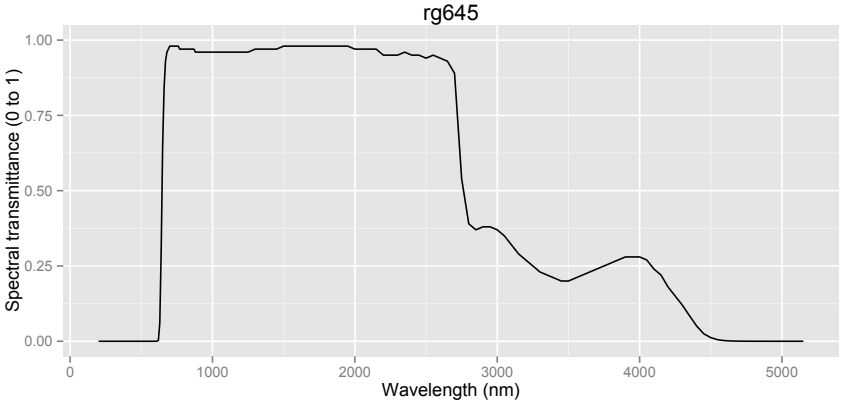

og570
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

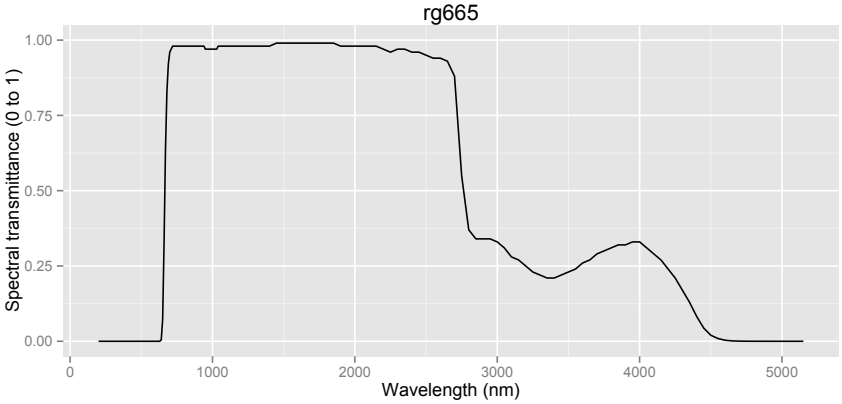


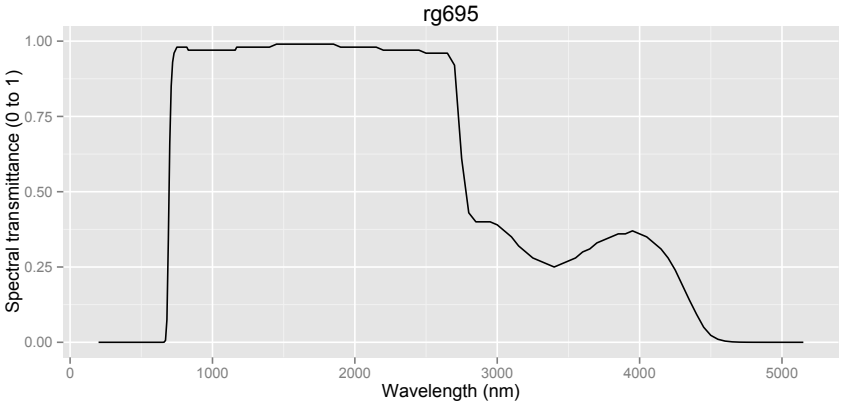

```
for (filter in c("rg610", "rg630", "rg645", "rg665", "rg695", "rg715",
                 "rg780", "rg830", "rg850", "rg9")) {
  filter.plotter(filter)
}
```

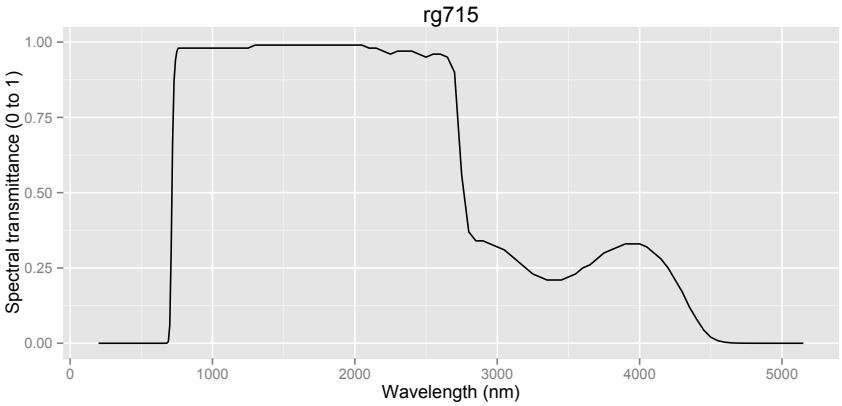


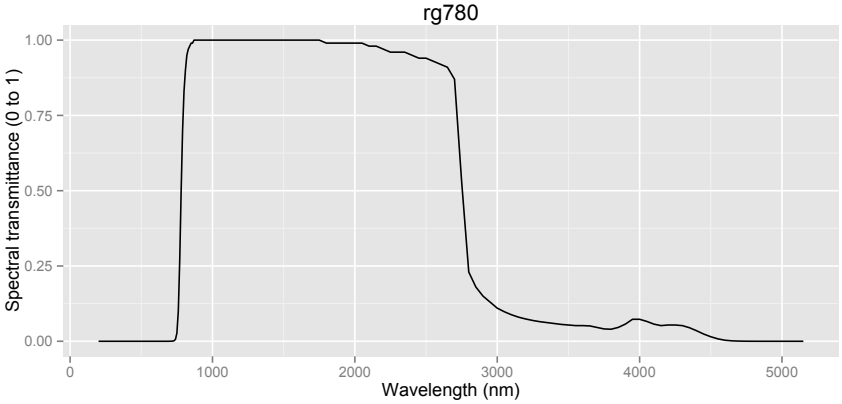


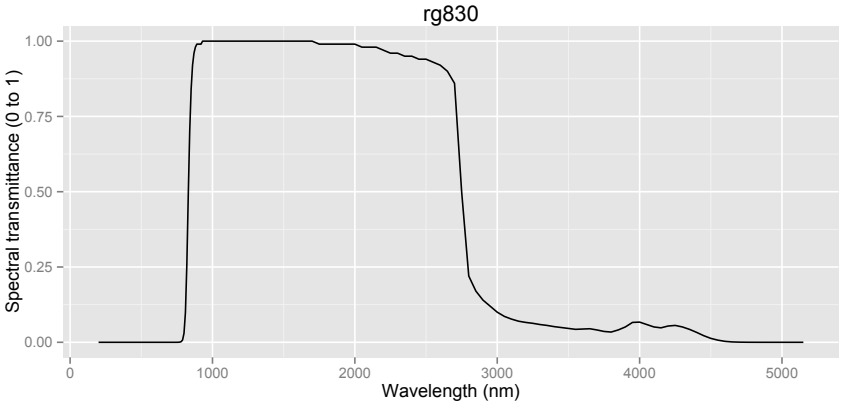

rg645
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

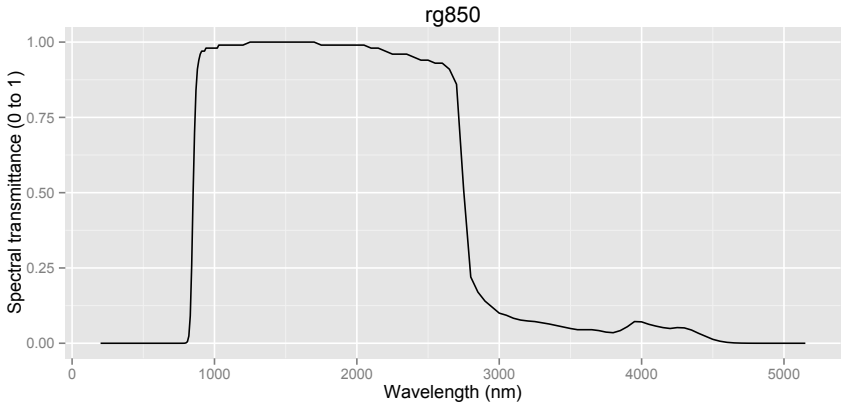

rg665
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

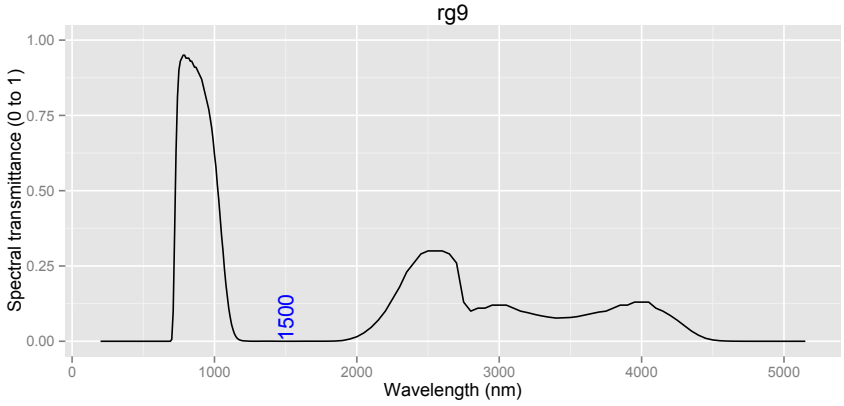

rg695
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)


rg715
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)


rg780
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

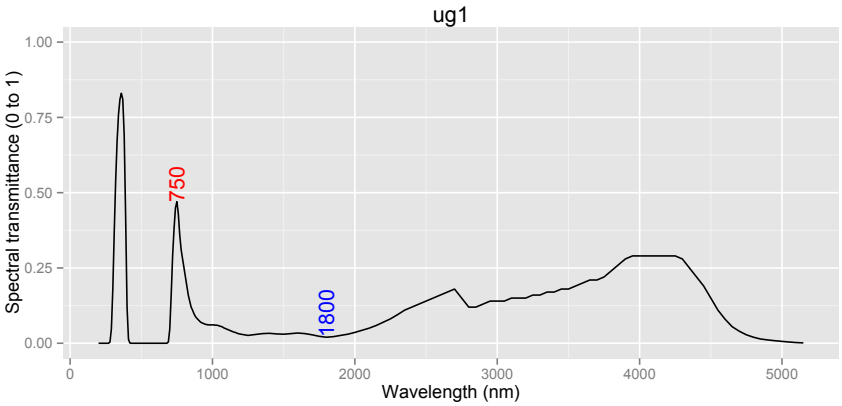

rg830
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)

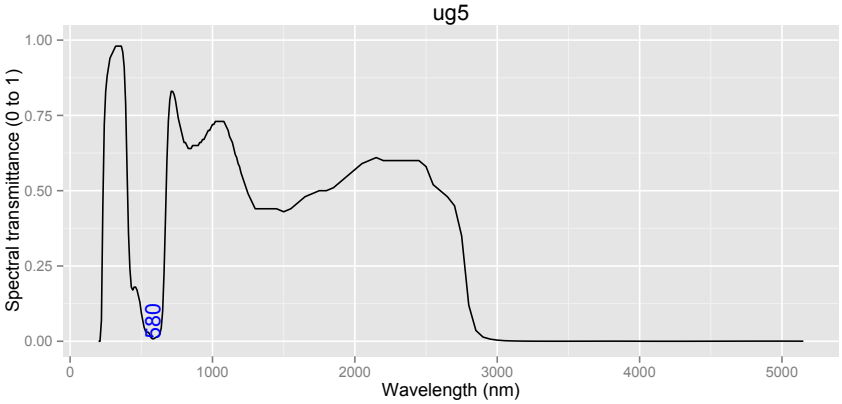


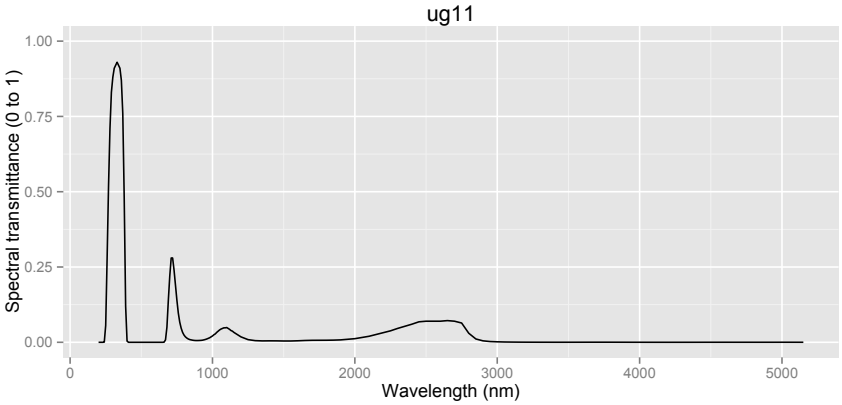


5.2 Schott band-pass filters

```
for (filter in c("ug1", "ug5", "ug11")) {
  filter.plotter(filter)
}
```


ug1
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
750
1800
0
1000
2000
3000
4000
5000
Wavelength (nm)


ug5
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
680
0
1000
2000
3000
4000
5000
Wavelength (nm)


ug11
Spectral transmittance (0 to 1)
1.00
0.75
0.50
0.25
0.00
0
1000
2000
3000
4000
5000
Wavelength (nm)