This homework set is NOT to be done in Zemax.

Problem 1:

A melt of an optical material has a dispersion formula given by:

$n^2 = 2.555947$ - 9.112305E-03· $\lambda^2$ + 1.706319E-02· $\lambda^{-2}$ - 3.920348E-04· $\lambda^{-4}$ +8.813931E-05· $\lambda^{-6}$ - 4.257410E-06· $\lambda^{-8}$

Find:

a. Index at d wavelength

b. Dispersion across F-C band

c. Partial dispersion relative to D-C’

d. Is this material a Crown or a Flint?

Problem 2:

For the following contact doublet:

(Figure meant to indicate “regions” only. )

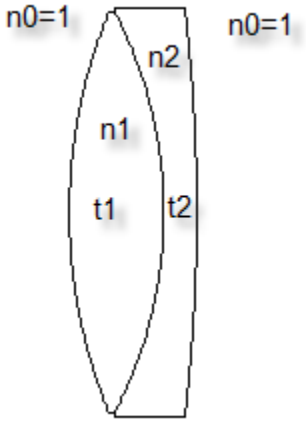
R1= 60.00  R2= -60.00  R3= 151.15

t1= 8.0  t2= 3.5

n1= 1.51680  n2= 1.64769

Stop at front surface

EPD:  40mm




Use the paraxial ray trace equations to trace the marginal ray through the system, to the image location.