> View(final\_density\_with\_oxides)

> read.csv ("final\_density\_with\_oxides.csv", header= TRUE) -> oxides

> summary (oxides$Density)

Min. 1st Qu. Median Mean 3rd Qu. Max. NA's

6.55 2460.00 2620.00 2958.28 3151.00 11000.00 517

> oxides <- oxides[which(oxides$Density != 0),]

> summary (oxides$Density)

Min. 1st Qu. Median Mean 3rd Qu. Max.

6.55 2460.00 2620.00 2958.28 3151.00 11000.00

> summary (oxides$sum)

Min. 1st Qu. Median Mean 3rd Qu. Max.

10.02 99.84 100.00 93.57 100.00 121.13

> oxides <- oxides[which(oxides$sum >= 98 & oxides$sum <= 101),]

> summary (oxides$sum)

Min. 1st Qu. Median Mean 3rd Qu. Max.

98.00 100.00 100.00 99.95 100.00 100.90

> comp12 <- oxides[which((oxides$X1 + oxides$X2) >=98 & (oxides$X1 + oxides$X2) <= 101),]

> View(comp12)

> comp13 <- oxides[which((oxides$X1 + oxides$X3) >=98 & (oxides$X1 + oxides$X3) <= 101),]

> View(comp13)

> comp14 <- oxides[which((oxides$X1 + oxides$X4) >=98 & (oxides$X1 + oxides$X4) <= 101),]

> View(comp14)

> comp12 <- comp12[which(comp12$X2 != 0.00),]

> comp13 <- comp13[which(comp13$X3 != 0.00),]

> comp14 <- comp14[which(comp14$X4 != 0.00),]

> comp17 <- oxides[which((oxides$X1 + oxides$X7) >=98 & (oxides$X1 + oxides$X7) <= 101),]

> comp17 <- comp17[which(comp17$X7 != 0.00),]

> view (comp17)

Error in view(comp17) : could not find function "view"

> View(comp14)

> View(comp17)

#boxplot

boxplot (comp13$Density, col=c("green", "skyblue2", "yellow"), ylab = "Density (kg/m3)",comp12$Density, comp17$Density)

MLR (density = intercept + a\*composition1 + b\* com7)

MLR of density and com1, comp7, comp8

> comp178 <- oxides[which((oxides$X1+oxides$X8+oxides$X7) >= 98 & (oxides$X1+oxides$X8+oxides$X7) <= 101),]

> comp178 <- comp178[which(comp178$X1 !=0.00 & comp178$X8 != 0.00 & comp178$X7 !=0.00),]

> View(comp178)

> linearmod178 <- lm(comp178$Density ~ comp178$X1 + comp178$X7 , data = comp178)

> summary (linearmod178)

Call:

lm(formula = comp178$Density ~ comp178$X1 + comp178$X7, data = comp178)

Residuals:

Min 1Q Median 3Q Max

-78.754 -7.543 1.300 9.549 40.506

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 2986.1641 21.4320 139.332 < 2e-16 \*\*\*

comp178$X1 -7.3418 0.2741 -26.785 < 2e-16 \*\*\*

comp178$X7 -3.0530 0.3654 -8.356 2.44e-13 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 18.66 on 108 degrees of freedom

Multiple R-squared: 0.8841, Adjusted R-squared: 0.882

F-statistic: 412.1 on 2 and 108 DF, p-value: < 2.2e-16

T test

> t.test (comp17$Density, var.equal=TRUE, mu= 2315.066, alternative ="greater", conf.level = 0.95)

One Sample t-test

data: comp17$Density

t = 0.00012102, df = 328, p-value = 0.5

alternative hypothesis: true mean is greater than 2315.066

95 percent confidence interval:

2311.503 Inf

sample estimates:

mean of x

2315.066