Table 6 (cont'd). ANOVA table (sum of square) for quadratic model (Response: Young's modulus)

Source	Sum of Square	DF	Mean Square	F	Prob > F	
Lack of Fit	3.50	3	1.17	2.49	0.2990	not significant
Pure Error	0.93	2	0.47			
Cor Total	113.55	16				
Standard Deviation	0.94					
Mean	6.79		R^2 =	0.95		
			Adjusted R^2 =	0.85		
			Predicted R^2 =	N/A		
			Adequate precision =	11.25		

The final empirical models in terms of coded factors were presented as follows (equation 2-4):

$$Y^1(\text{Tensile}) = 13.94 + 4.37A + 0.90B - 7.35C + 6.28A^2 + 0.46B^2 + 1.96C^2 + 2.67AB - 3.86AC - 0.24BC \quad (2)$$

$$Y^2(\%\ \text{Elongation}) = 212.38 - 64.99A + 21.22B + 21.25C - 85.84A^2 - 53.27B^2 - 44.53C^2 - 62.04AB + 46.74AC - 3.99BC \quad (3)$$

$$Y^3(\text{Young's Modulus}) = 9.04 + 0.37A + 1.37B - 1.71C - 1.57A^2 - 1.54B^2 - 1.45C^2 - 0.81AB - 1.10AC + 1.50BC \quad (4)$$

In actual factor terminology, the final experimental models are presented as equation 5-7:

$$Y^1(\text{Tensile}) = 32.45976 - 4.18167CNF - 2.96708GO - 2.22373EO + 11.15648CNF^2 + 0.82648GO^2 + 0.078579EO^2 - 4.74407(CNF)(GO) - 1.02828(CNF)(EO) - 0.063333(GO)(EO) \quad (5)$$

$$Y^2(\%\ \text{Elongation}) = -80.12 + 100.32CNF + 263.73GO + 31.32EO - 152.60CNF^2 - 94.71GO^2 - 1.78EO^2 - 110.29(CNF)(GO) + 12.46(CNF)(EO) - 1.07(GO)(EO) \quad (6)$$

$$Y^3(\text{Young's Modulus}) = 6.16877 + 2.83900CNF + 3.03308GO + 0.30246EO - 2.79256CNF^2 - 2.74522GO^2 - 0.058198EO^2 - 1.44511(CNF)(EO) - 0.29237(CNF)(EO) + 0.4(GO)(EO) \quad (7)$$

Within the limits of the experiment, the tensile strength, percentage elongation and Young's modulus can be predicting by using this model. Figures 1 (a-f) shown the normal probability plot of the residuals and the plot of the residuals versus the predicted response for tensile strength, percentage elongation and Young's modulus.

Plot pattern on the Figures 1 (a, c, e) revealed that the residuals mostly fall on a straight line inferring that errors are distributed normally, and thus, support adequacy of the least-square fit [16]. Figures 1 (b, d, and f) presented that they have no obvious pattern and unusual structure. The point also scattered equally above and below the x-axis. This suggests that the models proposed are satisfactory and there is no reason to suspect any violation of the independence or constant variance assumption.