

ANEXO No. 18. Análisis del experimento B&B para cada una de las respuestas

ANÁLISIS DE VARIANZA CORRIENTE 706B

Análisis de la Corriente, 706B (Experimento final B&B)  
Box\_Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 2:16 p.m.

#### Analysis Summary

Dependent variable: Ol\_y\_Ona\_706B

Factors:

- Carga
- Vapor\_E530
- Presión\_C525
- Nivel\_V540
- Vapor\_E532

Number of complete cases: 46

#### The StatAdvisor

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This procedure performs a multifactor analysis of variance for Ol y Ona 706B. It constructs various tests and graphs to determine which factors have a statistically significant effect on Ol y Ona 706B. It also tests for significant interactions amongst the factors, given sufficient data. The F-tests in the ANOVA table will allow you to identify the significant factors. For each significant factor, the Multiple Range Tests will tell you which means are significantly different from which others. The Means Plot and Interaction Plot will help you interpret the significant effects. The Residual Plots will help you judge whether the assumptions underlying the analysis of variance are violated by the data.

Análisis de la Corriente, 706B (Experimento final B&B)  
 Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
 27/08/2006 2:16 p.m.

Analysis of Variance for Ol y Ona 706B - Type III Sums of Squares

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
MAIN EFFECTS					
A:Carga	72,5886	2	36,2943	58,56	0,0000
B:Vapor E530	1,99021	2	0,995105	1,61	0,2152
C:Presión C525	205,331	2	102,665	165,65	0,0000
D:Nivel_V540	110,153	2	55,0767	88,87	0,0000
E:Vapor_E532	35,6193	2	17,8096	28,74	0,0000
RESIDUAL	21,6917	35	0,619763		
TOTAL (CORRECTED)	448,476	45			

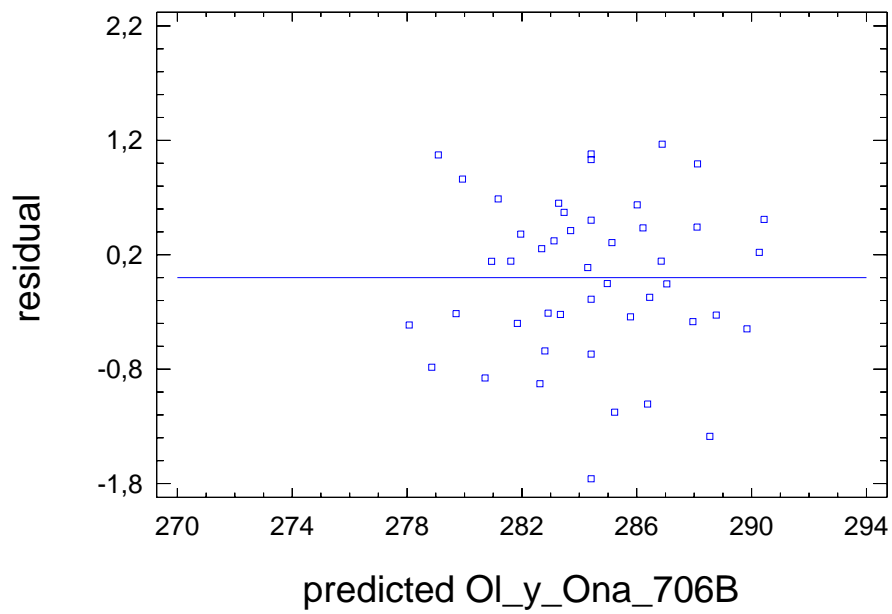
All F-ratios are based on the residual mean square error.

The StatAdvisor

The ANOVA table decomposes the variability of Ol y Ona 706B into contributions due to various factors. Since Type III sums of squares (the default) have been chosen, the contribution of each factor is measured having removed the effects of all other factors. The P-values test the statistical significance of each of the factors. Since 4 P-values are less than 0,05, these factors have a statistically significant effect on Ol\_y\_Ona\_706B at the 95,0% confidence level.

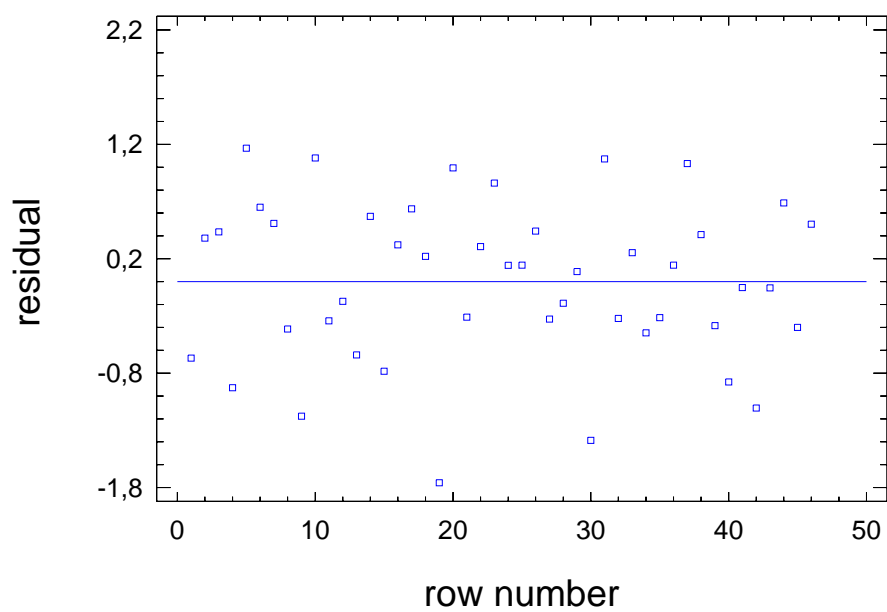
Análisis de la Corriente, 706B (Experimento final B&B)  
Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 2:16 p.m.

Residual Plot for OI\_y\_Ona\_706B



la Corriente, 706B (Experimento final B&B)  
09.04.2006.sgp (B&B design for all cases 09042006.sfx)  
27/08/2006 2:16 p.m.

Residual Plot for OI\_y\_Ona\_706B



ANÁLISIS DE VARIANZA CORRIENTE, 723

Análisis de la Corriente, 723 (Experimento final B&B)  
Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 2:15 p.m.

#### Analysis Summary

Dependent variable: Ol\_y\_Ona\_723

Factors:

- Carga
- Vapor\_E530
- Presión\_C525
- Nivel\_V540
- Vapor\_E532

Number of complete cases: 46

#### The StatAdvisor

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This procedure performs a multifactor analysis of variance for Ol y Ona 723. It constructs various tests and graphs to determine which factors have a statistically significant effect on Ol y Ona 723. It also tests for significant interactions amongst the factors, given sufficient data. The F-tests in the ANOVA table will allow you to identify the significant factors. For each significant factor, the Multiple Range Tests will tell you which means are significantly different from which others. The Means Plot and Interaction Plot will help you interpret the significant effects. The Residual Plots will help you judge whether the assumptions underlying the analysis of variance are violated by the data.



Análisis de la Corriente, 723 (Experimento final B&B)  
 Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
 27/08/2006 2:15 p.m.

Analysis of Variance for Ol y Ona 723 - Type III Sums of Squares

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
MAIN EFFECTS					
A:Carga	36,6435	2	18,3218	6,81	0,0032
B:Vapor E530	19,9893	2	9,99464	3,72	0,0344
C:Presión C525	198,48	2	99,2401	36,89	0,0000
D:Nivel_V540	61,7483	2	30,8741	11,48	0,0001
E:Vapor_E532	42,3923	2	21,1962	7,88	0,0015
RESIDUAL	94,1503	35	2,69001		
TOTAL (CORRECTED)	453,977	45			

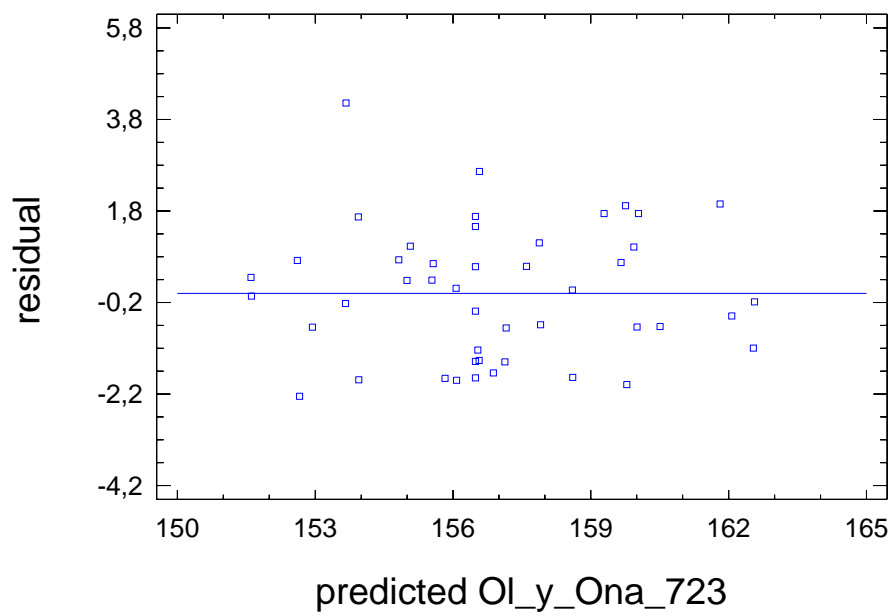
All F-ratios are based on the residual mean square error.

The StatAdvisor

The ANOVA table decomposes the variability of Ol y Ona 723 into contributions due to various factors. Since Type III sums of squares (the default) have been chosen, the contribution of each factor is measured having removed the effects of all other factors. The P-values test the statistical significance of each of the factors. Since 5 P-values are less than 0,05, these factors have a statistically significant effect on Ol\_y\_Ona\_723 at the 95,0% confidence level.

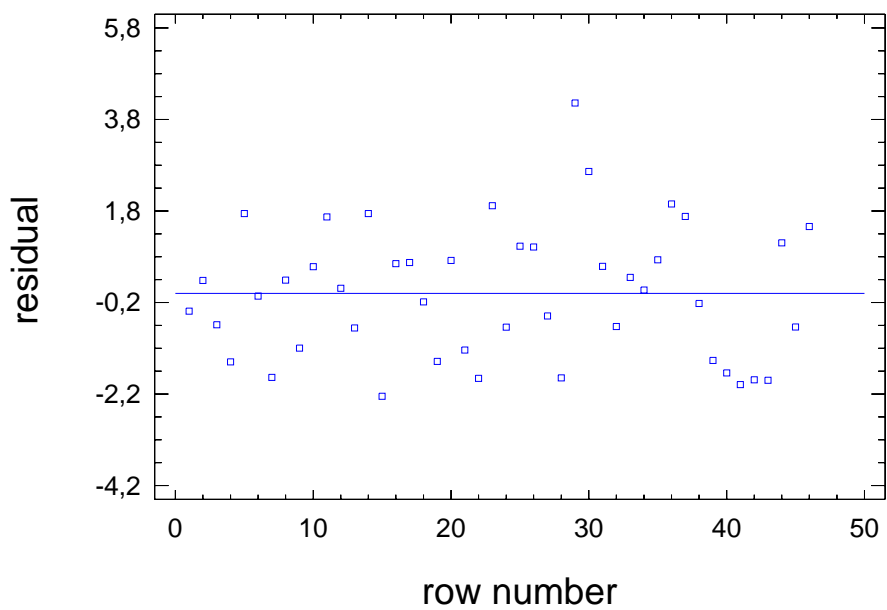
Análisis de la Corriente, 723 (Experimento final B&B)  
Box\_Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 2:15 p.m.

Residual Plot for OI\_y\_Ona\_723



la Corriente, 723 (Experimento final B&B)  
09.04.2006.sgp (B&B design for all cases 09042006.sfx)  
27/08/2006 2:15 p.m.

Residual Plot for Ol\_y\_Ona\_723



ANÁLISIS DEL EXPERIMENTO CORRIENTE, 706 B

Análisis de la Corriente, 706B (Experimento final B&B)  
Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:48 a.m.

Analysis Summary

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Estimated effects for Ol y Ona 706B

average	= 284,408	+/- 0,332216
A:Carga	= 4,255	+/- 0,406879
B:Vapor_E530	= 0,66875	+/- 0,406879
C:Presión_C525	= 7,15125	+/- 0,406879
D:Nivel_V540	= -5,205	+/- 0,406879
E:Vapor_E532	= -2,9825	+/- 0,406879
AA	= -0,277917	+/- 0,550917
AB	= 1,02	+/- 0,813759
AC	= -0,76	+/- 0,813759
AD	= 0,04	+/- 0,813759
AE	= 0,81	+/- 0,813759
BB	= 0,30375	+/- 0,550917
BC	= -0,385	+/- 0,813759
BD	= -1,07	+/- 0,813759
BE	= 0,52	+/- 0,813759
CC	= 0,59375	+/- 0,550917
CD	= -0,31	+/- 0,813759
CE	= 0,58	+/- 0,813759
DD	= -0,904583	+/- 0,550917
DE	= 0,93	+/- 0,813759
EE	= 0,132083	+/- 0,550917

Standard errors are based on total error with 25 d.f.

The StatAdvisor

This table shows each of the estimated effects and interactions. Also shown is the standard error of each of the effects, which measures their sampling error. To plot the estimates in decreasing order of importance, select Pareto Charts from the list of Graphical Options. To test the statistical significance of the effects, select ANOVA Table from the list of Tabular Options. You can then remove insignificant effects by pressing the alternate mouse button, selecting Analysis Options, and pressing the Exclude button.

Análisis de la Corriente, 706B (Experimento final B&B)  
 Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
 27/08/2006 8:48 a.m.

Analysis of Variance for Ol y Ona 706B

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
A:Carga	72,4201	1	72,4201	109,36	0,0000
B:Vapor_E530	1,78891	1	1,78891	2,70	0,1128
C:Presión C525	204,562	1	204,562	308,91	0,0000
D:Nivel V540	108,368	1	108,368	163,65	0,0000
E:Vapor_E532	35,5812	1	35,5812	53,73	0,0000
AA	0,168519	1	0,168519	0,25	0,6184
AB	1,0404	1	1,0404	1,57	0,2216
AC	0,5776	1	0,5776	0,87	0,3593
AD	0,0016	1	0,0016	0,00	0,9612
AE	0,6561	1	0,6561	0,99	0,3291
BB	0,201303	1	0,201303	0,30	0,5863
BC	0,148225	1	0,148225	0,22	0,6402
BD	1,1449	1	1,1449	1,73	0,2005
BE	0,2704	1	0,2704	0,41	0,5286
CC	0,769176	1	0,769176	1,16	0,2914
CD	0,0961	1	0,0961	0,15	0,7065
CE	0,3364	1	0,3364	0,51	0,4826
DD	1,78532	1	1,78532	2,70	0,1131
DE	0,8649	1	0,8649	1,31	0,2639
EE	0,038064	1	0,038064	0,06	0,8125
Total error	16,5551	25	0,662203		
Total (corr.)	448,476	45			

R-squared = 96,3086 percent  
 R-squared (adjusted for d.f.) = 93,3555 percent  
 Standard Error of Est. = 0,813759  
 Mean absolute error = 0,45846  
 Durbin-Watson statistic = 2,45445 (P=0,1569)  
 Lag 1 residual autocorrelation = -0,248318

The StatAdvisor

The ANOVA table partitions the variability in Ol y Ona 706B into separate pieces for each of the effects. It then tests the statistical significance of each effect by comparing the mean square against an estimate of the experimental error. In this case, 4 effects have P-values less than 0,05, indicating that they are significantly different from zero at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 96,3086% of the variability in Ol\_y\_Ona\_706B. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 93,3555%. The standard error of the estimate shows the standard deviation of the residuals to be 0,813759. The mean absolute error (MAE) of 0,45846 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in your data file. Since the P-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals.

Análisis de la Corriente, 706B (Experimento final B&B)  
Box Benken\_706B ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:48 a.m.

Regression coeffs. for Ol y Ona 706B

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constant      = 284,408  
A:Carga       = 2,1275  
B:Vapor E530  = 0,334375  
C:Presión C525 = 3,57563  
D:Nivel V540  = -2,6025  
E:Vapor E532  = -1,49125  
AA           = -0,138958  
AB           = 0,51  
AC           = -0,38  
AD           = 0,02  
AE           = 0,405  
BB           = 0,151875  
BC           = -0,1925  
BD           = -0,535  
BE           = 0,26  
CC           = 0,296875  
CD           = -0,155  
CE           = 0,29  
DD           = -0,452292  
DE           = 0,465  
EE           = 0,0660417  
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The StatAdvisor

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This pane displays the regression equation which has been fitted to the data. The equation of the fitted model is

$$\begin{aligned} \text{Ol y Ona 706B} = & 284,408 + 2,1275 \cdot \text{Carga} + 0,334375 \cdot \text{Vapor E530} + \\ & 3,57563 \cdot \text{Presión C525} - 2,6025 \cdot \text{Nivel V540} - 1,49125 \cdot \text{Vapor E532} - \\ & 0,138958 \cdot \text{Carga}^2 + 0,51 \cdot \text{Carga} \cdot \text{Vapor E530} - 0,38 \cdot \text{Carga} \cdot \text{Presión C525} + \\ & 0,02 \cdot \text{Carga} \cdot \text{Nivel V540} + 0,405 \cdot \text{Carga} \cdot \text{Vapor E532} + 0,151875 \cdot \text{Vapor E530}^2 \\ & - 0,1925 \cdot \text{Vapor E530} \cdot \text{Presión C525} - 0,535 \cdot \text{Vapor E530} \cdot \text{Nivel V540} + \\ & 0,26 \cdot \text{Vapor E530} \cdot \text{Vapor E532} + 0,296875 \cdot \text{Presión C525}^2 - \\ & 0,155 \cdot \text{Presión C525} \cdot \text{Nivel V540} + 0,29 \cdot \text{Presión C525} \cdot \text{Vapor E532} - \\ & 0,452292 \cdot \text{Nivel V540}^2 + 0,465 \cdot \text{Nivel V540} \cdot \text{Vapor E532} + \\ & 0,0660417 \cdot \text{Vapor E532}^2 \end{aligned}$$

where the values of the variables are specified in their original units. To have STATGRAPHICS evaluate this function, select Predictions from the list of Tabular Options. To plot the function, select Response Plots from the list of Graphical Options.

Estimation Results for Ol y Ona 706B

Row	Observed Value	Fitted Value	Lower 95,0% CL for Mean	Upper 95,0% CL for Mean
1	283,74	284,408	283,724	285,093
2	282,34	282,469	281,284	283,654
3	286,65	285,704	284,519	286,889
4	281,7	282,118	280,933	283,303
5	288,05	287,393	286,208	288,578
6	283,93	283,125	281,94	284,31
7	290,94	290,586	289,401	291,771
8	277,66	278,23	277,045	279,415
9	284,05	285,071	283,886	286,256
10	285,49	284,408	283,724	285,093
11	285,44	286,043	284,858	287,228
12	286,28	286,192	285,007	287,377
13	282,16	282,541	281,356	283,726
14	284,04	283,729	282,544	284,914
15	278,08	278,483	277,298	279,668
16	283,44	283,498	282,313	284,683
17	286,65	286,394	285,209	287,579
18	290,49	289,889	288,704	291,074
19	282,65	284,408	283,724	285,093
20	289,11	288,581	287,396	289,766
21	282,6	282,446	281,261	283,631
22	285,44	284,668	283,483	285,853
23	280,79	280,393	279,208	281,578
24	281,09	280,755	279,569	281,94
25	281,76	281,808	280,623	282,993
26	288,54	288,291	287,106	289,476
27	288,44	288,575	287,389	289,76
28	284,22	284,408	283,724	285,093
29	284,38	284,312	283,127	285,497
30	287,16	288,527	287,342	289,712
31	280,16	279,067	277,882	280,252
32	283,02	283,362	282,177	284,547
33	282,94	282,977	281,792	284,162
34	289,39	289,548	288,363	290,733
35	279,39	279,414	278,229	280,599
36	287,0	287,146	285,961	288,331
37	285,44	284,408	283,724	285,093
38	284,11	284,104	282,919	285,289
39	287,57	287,549	286,364	288,734
40	279,84	280,312	279,127	281,497
41	284,92	285,377	284,192	286,562
42	285,27	285,841	284,656	287,026
43	286,99	287,58	286,395	288,765
44	281,86	281,706	280,521	282,891
45	281,44	281,305	280,12	282,49
46	284,91	284,408	283,724	285,093

The StatAdvisor

This table contains information about values of Ol y Ona\_706B generated using the fitted model. The table includes:

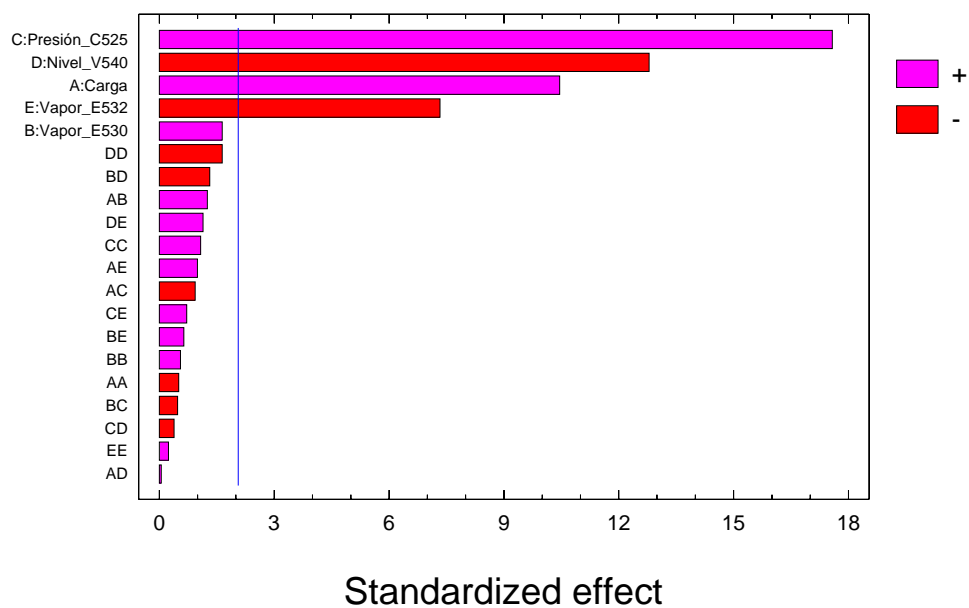
- (1) the observed value of Ol y Ona\_706B (if any)
- (2) the predicted value of Ol y Ona\_706B using the fitted model
- (3) 95,0% confidence limits for the mean response

Each item corresponds to the values of the experimental factors in a specific row of your data file. To generate forecasts for additional combinations of the factors, add additional rows to the bottom of your data file. In each new row, enter values for the experimental factors but leave the cell for the response empty. When you return to this pane, forecasts will be added to the table for the new rows, but the model will be unaffected.

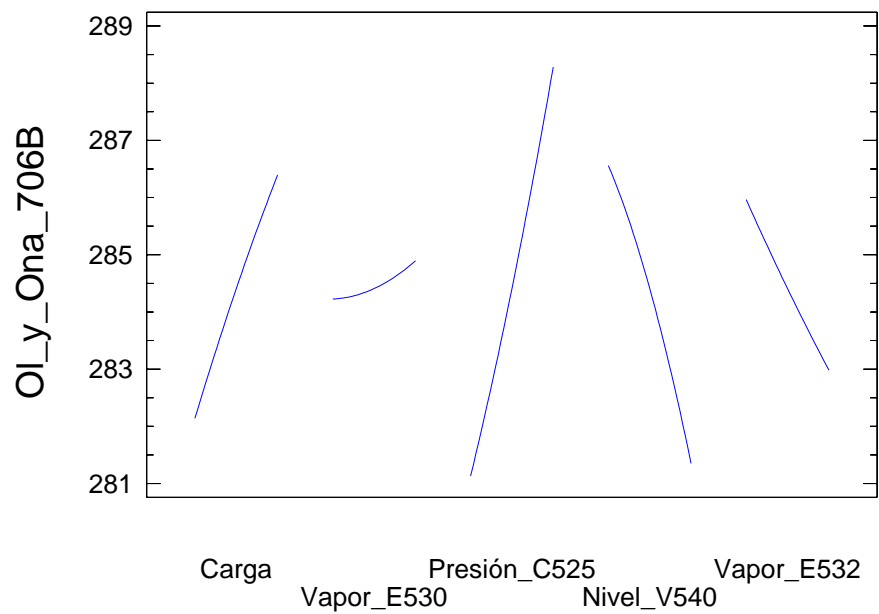


Análisis de la Corriente, 706B (Experimento final B&B)  
Box\_Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:48 a.m.

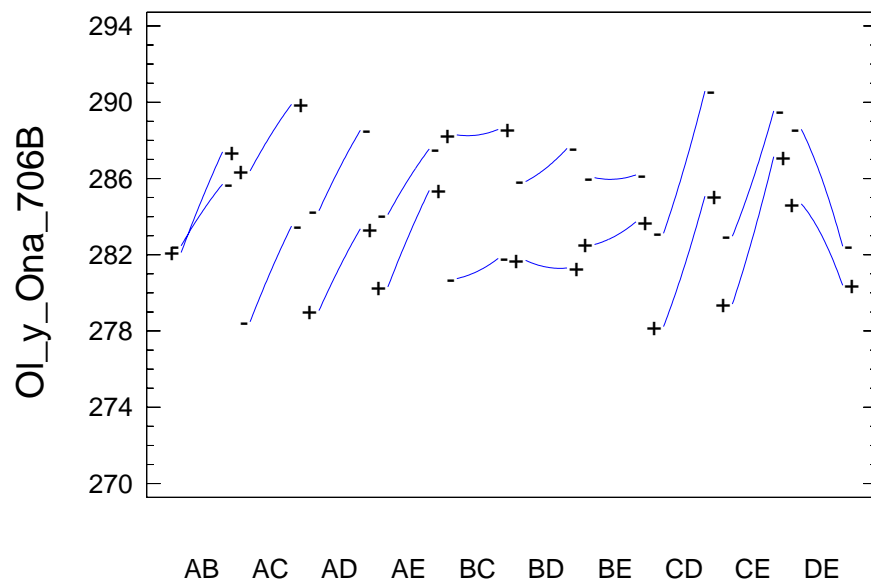
### Standardized Pareto Chart for Ol\_y\_Ona\_706B



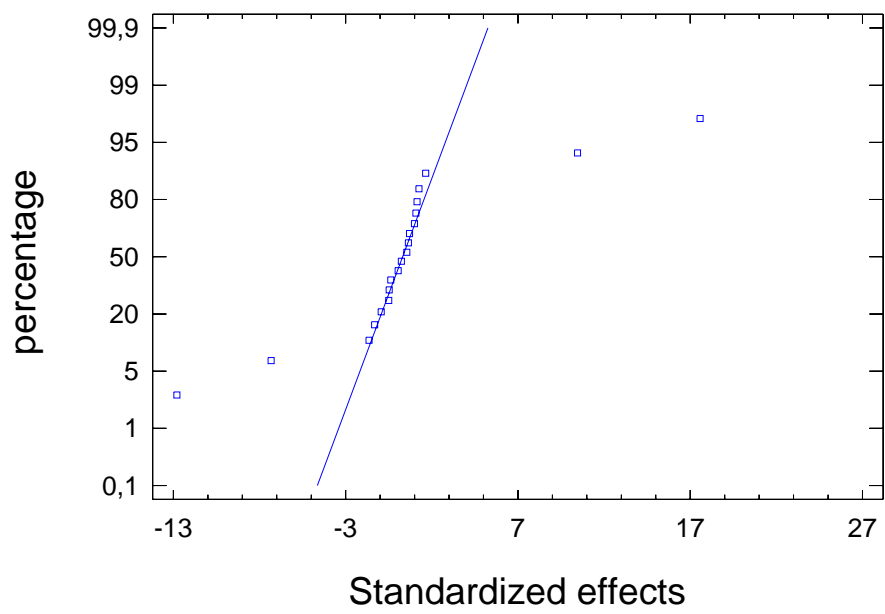
Main Effects Plot for OI\_y\_Ona\_706B



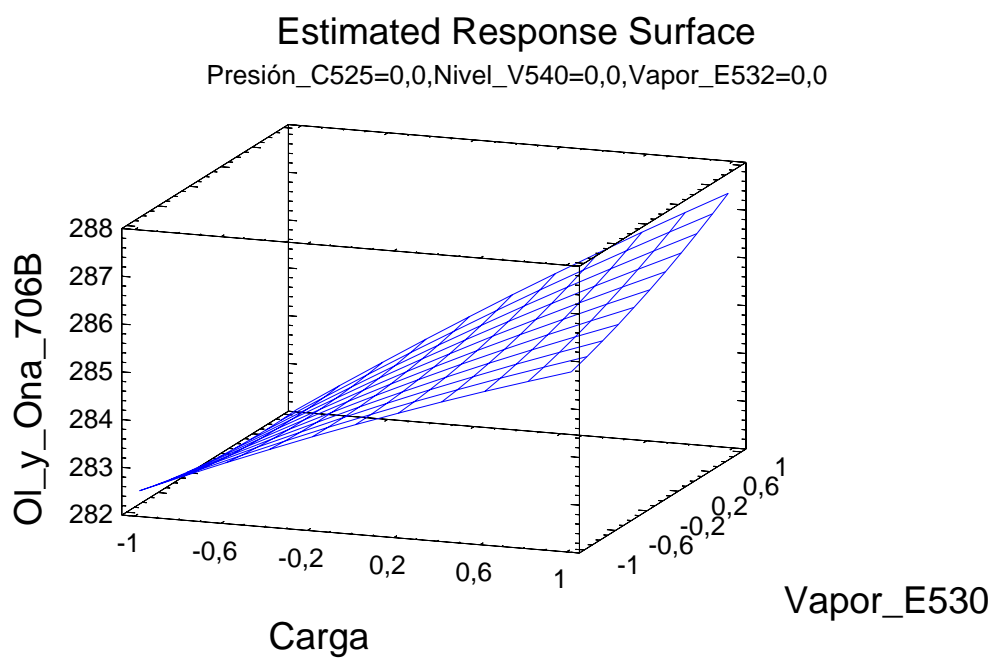
Interaction Plot for OI\_y\_Ona\_706B



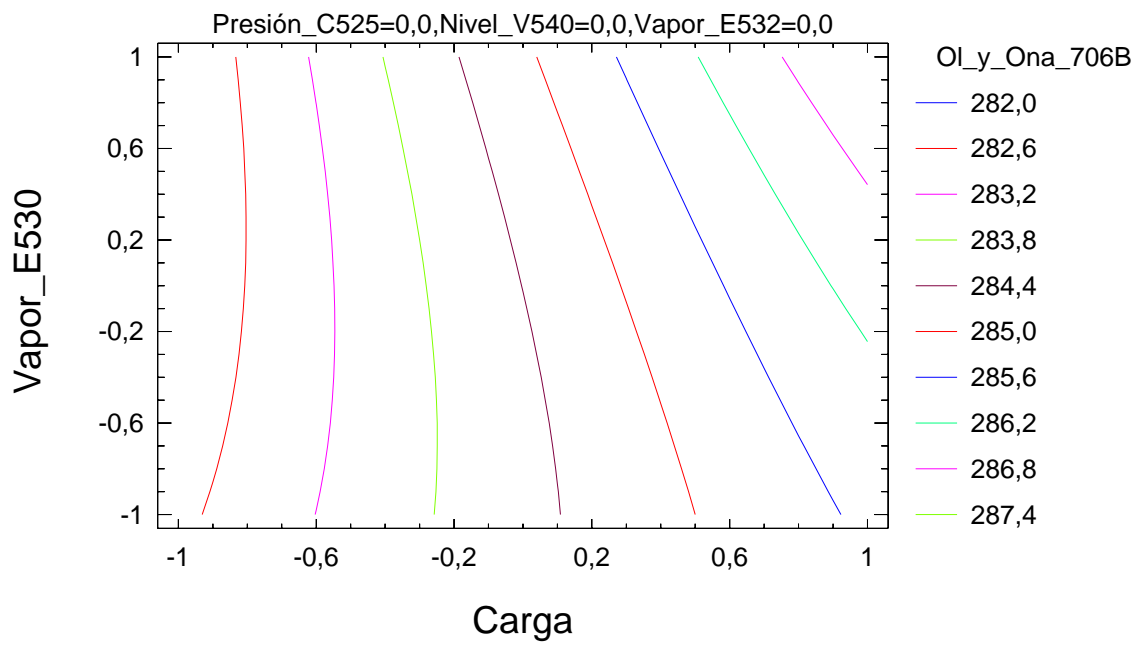
Normal Probability Plot for OI\_y\_Ona\_706B



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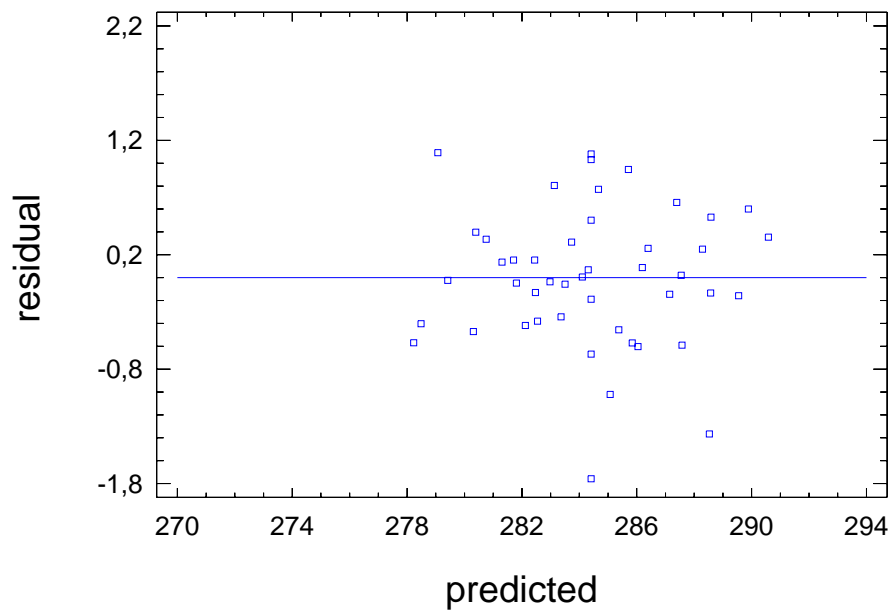


### Contours of Estimated Response Surface



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Residual Plot for OI\_y\_Ona\_706B



## ANÁLISIS DEL EXPERIMENTO CORRIENTE 723



Análisis de la Corriente, 723 (Experimento final B&B)  
Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:56 a.m.

Analysis Summary

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Estimated effects for Ol y Ona 723

average	= 156,488	+/- 0,680648
A:Carga	= 2,9075	+/- 0,83362
B:Vapor_E530	= 2,13	+/- 0,83362
C:Presión_C525	= 6,99625	+/- 0,83362
D:Nivel_V540	= 3,92875	+/- 0,83362
E:Vapor_E532	= 3,2175	+/- 0,83362
AA	= 1,13875	+/- 1,12873
AB	= 2,105	+/- 1,66724
AC	= -1,88	+/- 1,66724
AD	= 0,09	+/- 1,66724
AE	= 0,495	+/- 1,66724
BB	= 0,91875	+/- 1,12873
BC	= -1,64	+/- 1,66724
BD	= -0,915	+/- 1,66724
BE	= 2,03	+/- 1,66724
CC	= 1,11042	+/- 1,12873
CD	= 0,145	+/- 1,66724
CE	= 0,75	+/- 1,66724
DD	= 0,0604167	+/- 1,12873
DE	= 2,865	+/- 1,66724
EE	= -0,67125	+/- 1,12873

Standard errors are based on total error with 25 d.f.

The StatAdvisor

This table shows each of the estimated effects and interactions. Also shown is the standard error of each of the effects, which measures their sampling error. To plot the estimates in decreasing order of importance, select Pareto Charts from the list of Graphical Options. To test the statistical significance of the effects, select ANOVA Table from the list of Tabular Options. You can then remove insignificant effects by pressing the alternate mouse button, selecting Analysis Options, and pressing the Exclude button.

Análisis de la Corriente, 723 (Experimento final B&B)  
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 27/08/2006 8:56 a.m.

Analysis of Variance for Ol y Ona 723

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
A:Carga	33,8142	1	33,8142	12,16	0,0018
B:Vapor_E530	18,1476	1	18,1476	6,53	0,0171
C:Presión_C525	195,79	1	195,79	70,44	0,0000
D:Nivel_V540	61,7403	1	61,7403	22,21	0,0001
E:Vapor_E532	41,4092	1	41,4092	14,90	0,0007
AA	2,82928	1	2,82928	1,02	0,3227
AB	4,43103	1	4,43103	1,59	0,2184
AC	3,5344	1	3,5344	1,27	0,2702
AD	0,0081	1	0,0081	0,00	0,9574
AE	0,245025	1	0,245025	0,09	0,7690
BB	1,84168	1	1,84168	0,66	0,4233
BC	2,6896	1	2,6896	0,97	0,3347
BD	0,837225	1	0,837225	0,30	0,5880
BE	4,1209	1	4,1209	1,48	0,2348
CC	2,69024	1	2,69024	0,97	0,3347
CD	0,021025	1	0,021025	0,01	0,9314
CE	0,5625	1	0,5625	0,20	0,6567
DD	0,00796402	1	0,00796402	0,00	0,9577
DE	8,20822	1	8,20822	2,95	0,0981
EE	0,983076	1	0,983076	0,35	0,5574
Total error	69,4922	25	2,77969		
Total (corr.)	453,977	45			

R-squared = 84,6926 percent  
 R-squared (adjusted for d.f.) = 72,4466 percent  
 Standard Error of Est. = 1,66724  
 Mean absolute error = 0,930236  
 Durbin-Watson statistic = 1,48035 (P=0,1170)  
 Lag 1 residual autocorrelation = 0,243369

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The ANOVA table partitions the variability in Ol y Ona 723 into separate pieces for each of the effects. It then tests the statistical significance of each effect by comparing the mean square against an estimate of the experimental error. In this case, 5 effects have P-values less than 0,05, indicating that they are significantly different from zero at the 95,0% confidence level. The R-Squared statistic indicates that the model as fitted explains 84,6926% of the variability in Ol\_y\_Ona\_723. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 72,4466%. The standard error of the estimate shows the standard deviation of the residuals to be 1,66724. The mean absolute error (MAE) of 0,930236 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in your data file. Since the P-value is greater than 0.05, there is no indication of serial autocorrelation in the residuals.

Análisis de la Corriente, 723 (Experimento final B&B)  
Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:56 a.m.

Regression coeffs. for Ol y Ona 723

```
-----  
constant          = 156,488  
A:Carga           = 1,45375  
B:Vapor E530     = 1,065  
C:Presión C525   = 3,49812  
D:Nivel V540     = 1,96437  
E:Vapor E532     = 1,60875  
AA              = 0,569375  
AB              = 1,0525  
AC              = -0,94  
AD              = 0,045  
AE              = 0,2475  
BB              = 0,459375  
BC              = -0,82  
BD              = -0,4575  
BE              = 1,015  
CC              = 0,555208  
CD              = 0,0725  
CE              = 0,375  
DD              = 0,0302083  
DE              = 1,4325  
EE              = -0,335625  
-----
```

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-----  
This pane displays the regression equation which has been fitted to the data. The equation of the fitted model is

$$\begin{aligned} \text{Ol y Ona 723} = & 156,488 + 1,45375 \cdot \text{Carga} + 1,065 \cdot \text{Vapor E530} + \\ & 3,49812 \cdot \text{Presión C525} + 1,96437 \cdot \text{Nivel V540} + 1,60875 \cdot \text{Vapor E532} + \\ & 0,569375 \cdot \text{Carga}^2 + 1,0525 \cdot \text{Carga} \cdot \text{Vapor E530} - 0,94 \cdot \text{Carga} \cdot \text{Presión C525} + \\ & 0,045 \cdot \text{Carga} \cdot \text{Nivel V540} + 0,2475 \cdot \text{Carga} \cdot \text{Vapor E532} + \\ & 0,459375 \cdot \text{Vapor E530}^2 - 0,82 \cdot \text{Vapor E530} \cdot \text{Presión C525} - \\ & 0,4575 \cdot \text{Vapor E530} \cdot \text{Nivel V540} + 1,015 \cdot \text{Vapor E530} \cdot \text{Vapor E532} + \\ & 0,555208 \cdot \text{Presión C525}^2 + 0,0725 \cdot \text{Presión C525} \cdot \text{Nivel V540} + \\ & 0,375 \cdot \text{Presión C525} \cdot \text{Vapor E532} + 0,0302083 \cdot \text{Nivel V540}^2 + \\ & 1,4325 \cdot \text{Nivel V540} \cdot \text{Vapor E532} - 0,335625 \cdot \text{Vapor E532}^2 \end{aligned}$$

where the values of the variables are specified in their original units. To have STATGRAPHICS evaluate this function, select Predictions from the list of Tabular Options. To plot the function, select Response Plots from the list of Graphical Options.

Análisis de la Corriente, 723 (Experimento final B&B)  
 Box Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
 27/08/2006 8:56 a.m.

Estimation Results for Ol y Ona 723

Row	Observed Value	Fitted Value	Lower 95,0% CL for Mean	Upper 95,0% CL for Mean
1	156,1	156,488	155,087	157,89
2	155,28	156,051	153,623	158,479
3	157,22	156,853	154,425	159,281
4	155,63	156,076	153,648	158,504
5	161,78	161,088	158,66	163,516
6	151,55	151,684	149,256	154,112
7	156,77	158,535	156,107	160,963
8	155,83	155,468	153,039	157,896
9	161,34	162,609	160,181	165,037
10	157,07	156,488	155,087	157,89
11	155,61	154,953	152,525	157,381
12	156,18	155,053	152,625	157,481
13	156,4	156,141	153,713	158,569
14	161,03	160,301	157,873	162,729
15	150,41	151,721	149,293	154,149
16	156,22	156,509	154,081	158,937
17	160,33	160,597	158,169	163,025
18	162,38	161,625	159,197	164,053
19	155,0	156,488	155,087	157,89
20	153,33	154,042	151,614	156,47
21	155,3	155,106	152,678	157,534
22	153,97	154,395	151,967	156,823
23	161,67	161,189	158,761	163,617
24	152,2	152,12	149,692	154,548
25	156,1	155,89	153,462	158,318
26	160,95	160,756	158,328	163,184
27	161,57	161,246	158,818	163,674
28	154,64	156,488	155,087	157,89
29	157,83	153,715	151,287	156,143
30	159,24	156,532	154,104	158,96
31	158,19	157,554	155,126	159,982
32	159,78	160,551	158,123	162,979
33	151,95	151,976	149,548	154,404
34	158,67	158,222	155,794	160,65
35	155,55	154,444	152,016	156,872
36	163,77	162,19	159,762	164,618
37	158,17	156,488	155,087	157,89
38	153,44	153,907	151,479	156,335
39	155,1	156,32	153,892	158,748
40	155,14	156,63	154,202	159,058
41	157,79	160,032	157,604	162,46
42	152,06	153,491	151,063	155,919
43	154,18	156,536	154,108	158,964
44	158,98	158,335	155,907	160,763
45	159,27	159,55	157,122	161,978
46	157,95	156,488	155,087	157,89

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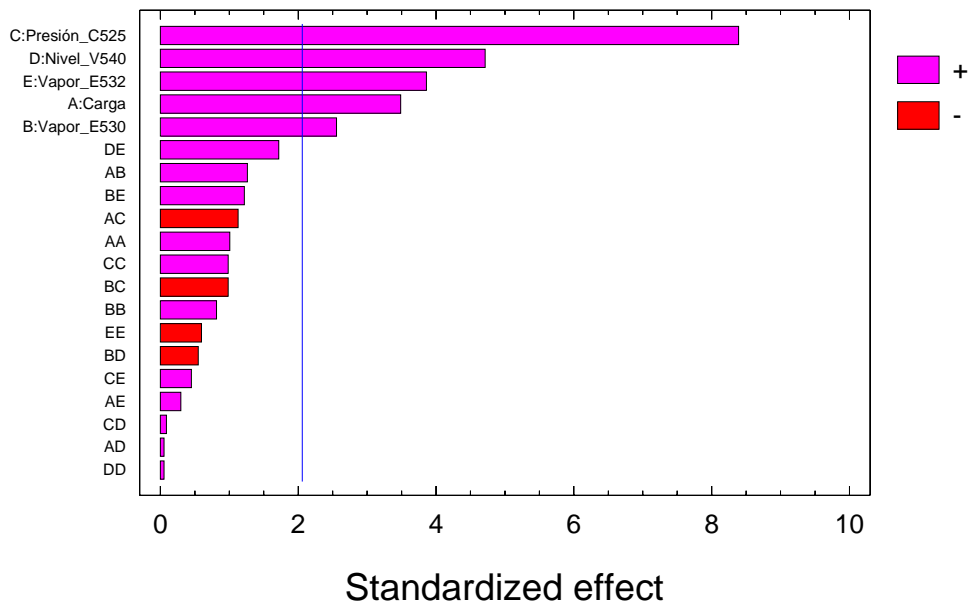
This table contains information about values of Ol y Ona\_723 generated using the fitted model. The table includes:

- (1) the observed value of Ol y Ona\_723 (if any)
- (2) the predicted value of Ol y Ona\_723 using the fitted model
- (3) 95,0% confidence limits for the mean response

Each item corresponds to the values of the experimental factors in a specific row of your data file. To generate forecasts for additional combinations of the factors, add additional rows to the bottom of your data file. In each new row, enter values for the experimental factors but leave the cell for the response empty. When you return to this pane, forecasts will be added to the table for the new rows, but the model will be unaffected.

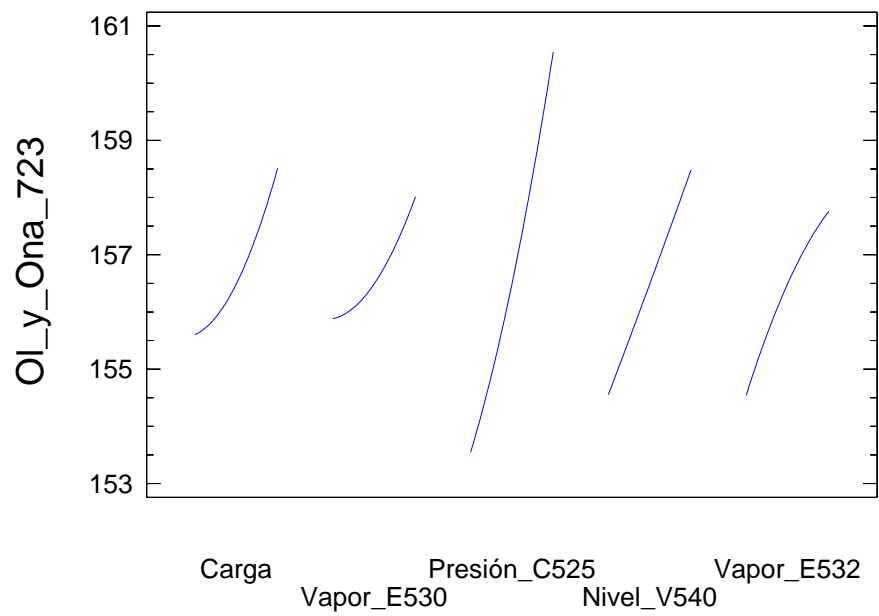
Análisis de la Corriente, 723 (Experimento final B&B)  
Box\_Benken\_706B\_ortogonal\_09.04.2006.sgp (B&B\_design\_for\_all\_cases\_09042006.sfx)  
27/08/2006 8:56 a.m.

### Standardized Pareto Chart for Ol\_y\_Ona\_723



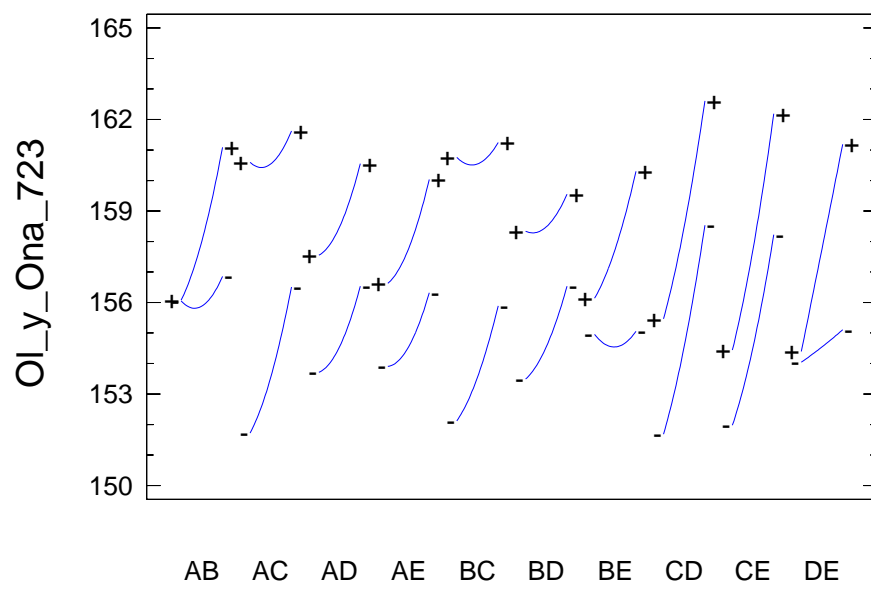
ento final B&B)  
s 09042006.sfx)  
2006 8:56 a.m.

Main Effects Plot for Ol\_y\_Ona\_723

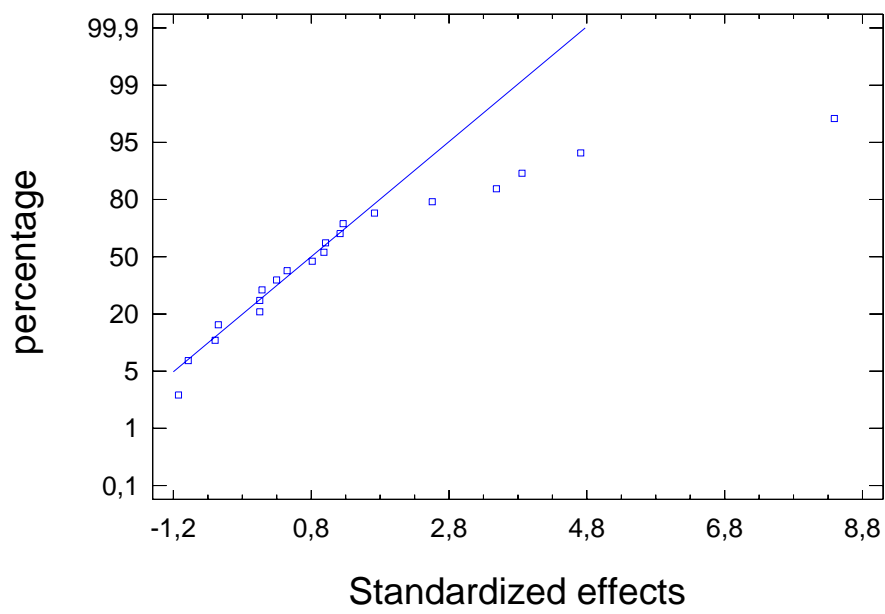


ento final B&B)  
s 09042006.sfx)  
2006 8:56 a.m.

Interaction Plot for Ol\_y\_Ona\_723

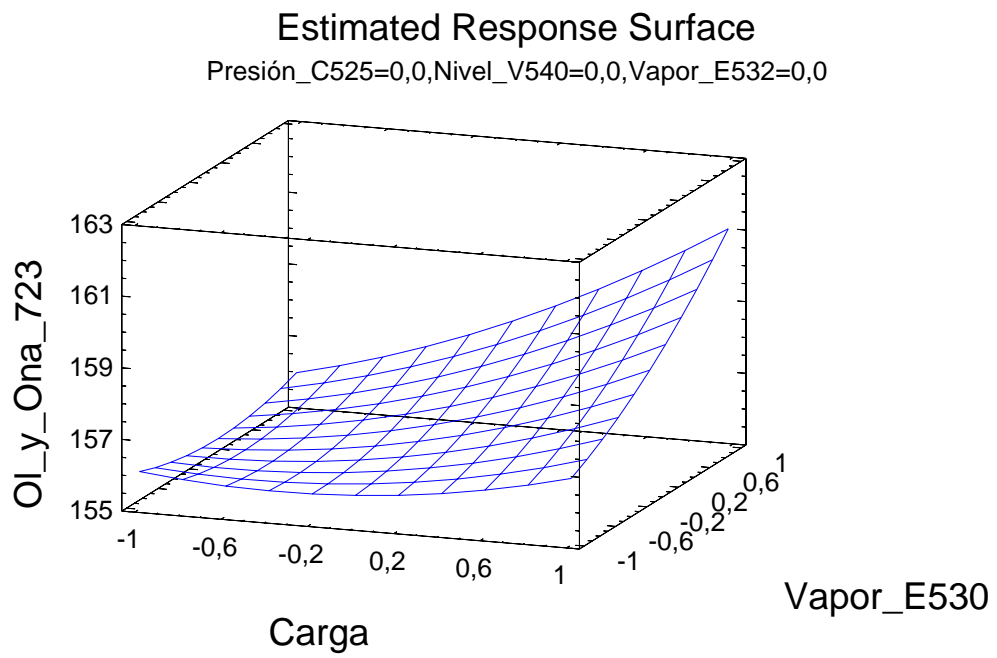


Normal Probability Plot for Ol\_y\_Ona\_723

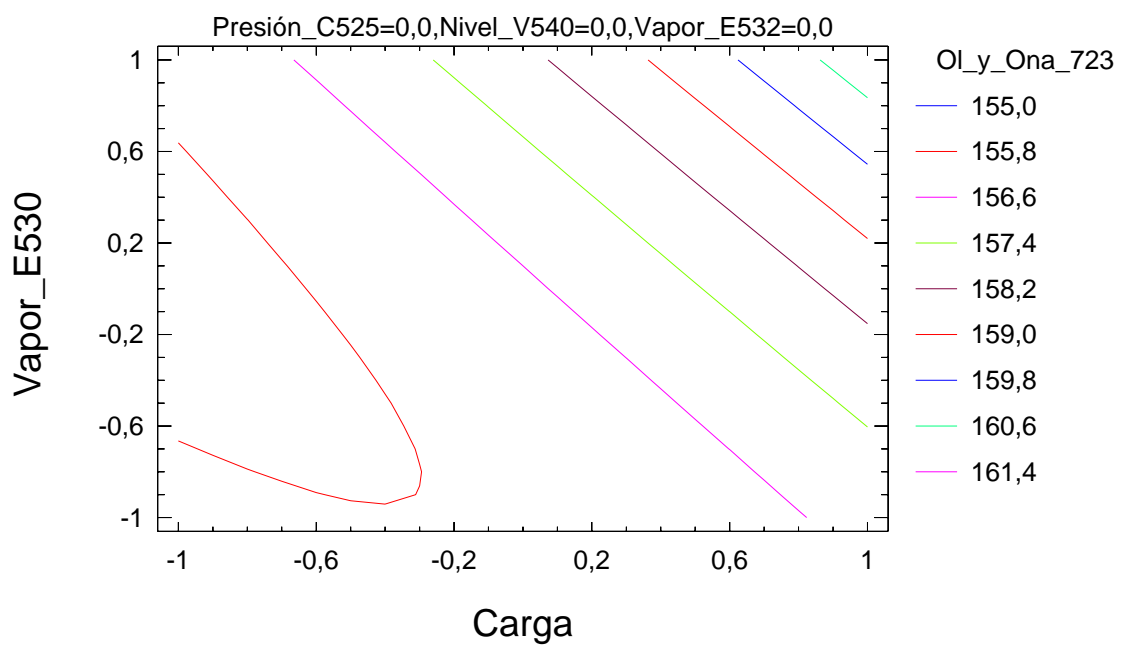




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2006 8:56 a.m.



### Contours of Estimated Response Surface



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2006 8:56 a.m.

Residual Plot for Ol\_y\_Ona\_723

