

T A B L E 15A.1. The Hald Data

X_1	X_2	X_3	X_4	Y	Row Sum of X 's
7	26	6	60	78.5	99
1	29	15	52	74.3	97
11	56	8	20	104.3	95
11	31	8	47	87.6	97
7	52	6	33	95.9	98
11	55	9	22	109.2	97
3	71	17	6	102.7	97
1	31	22	44	72.5	98
2	54	18	22	93.1	96
21	47	4	26	115.9	98
1	40	23	34	83.8	98
11	66	9	12	113.3	98
10	68	8	12	109.4	98

APPENDIX 15A. HALD DATA, CORRELATION MATRIX, AND ALL 15 POSSIBLE REGRESSIONS

(Source: The data were first given in "Effect of composition of Portland cement on heat evolved during hardening," by H. Woods, H. H. Steinour, and H. R. Starke, *Industrial and Engineering Chemistry*, **24**, 1932, 1207–1214, Table I.) The variables shown in Table 15A.1 are:

X_1 = amount of tricalcium aluminate, $3 \text{ CaO} \cdot \text{Al}_2\text{O}_3$.

X_2 = amount of tricalcium silicate, $3 \text{ CaO} \cdot \text{SiO}_2$.

X_3 = amount of tetracalcium alumino ferrite, $4 \text{ CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$.

X_4 = amount of dicalcium silicate, $2 \text{ CaO} \cdot \text{SiO}_2$.

(Response) Y = heat evolved in calories per gram of cement.

X_1 , X_2 , X_3 , and X_4 are measured as percent of the weight of the clinkers from which the cement was made.

Table 15A.2 shows the MINITAB version of the correlation matrix for the Hald data.

The following pages (MINITAB derived) show all 15 regressions containing an

T A B L E 15A.2. Correlation Matrix for Hald Data (MINITAB Version)

```
read cl-c5
(enter Hald data now)
correlate cl-c5 m1
print m1
end
stop
```

Matrix M1				
1.00000	0.22858	-0.82413	-0.24545	0.73072
0.22858	1.00000	-0.13924	-0.97295	0.81625
-0.82413	-0.13924	1.00000	0.02954	-0.53467
-0.24545	-0.97295	0.02954	1.00000	-0.82131
0.73072	0.81625	-0.53467	-0.82131	1.00000