

APPENDIX C

ASAP 2010 V2.00 B Unit 1 Serial # 423
 Sample Id: Silica L-90 1E102

BET Surface Area Report

BET Surface Area: 83.1683 ± 0.2746 m²/g
 Slope: 0.051768 ± 0.000171
 Y-Intercept: 0.000574 ± 0.000023
 C: 91.153644
 VM: 19.105106 cm³/g STP
 Correlation Coefficient: 9.999836e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P - 1)]
0.063896365	17.5522	0.003889
0.077723604	18.2983	0.004606
0.119860280	20.1250	0.006767
0.160250377	21.5680	0.008848
0.200785963	22.8633	0.010988

Langmuir Surface Area Report

Langmuir Surface Area: 115.6623 ± 3.0254 m²/g
 Slope: 0.037637 ± 0.000984
 Y-Intercept: 0.001325 ± 0.000132
 b: 0.035210
 VM: 26.569500 cm³/g STP
 Correlation Coefficient: 9.989752e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P)]
0.063896365	17.5522	0.003640
0.077723604	18.2983	0.004248
0.119860280	20.1250	0.005956
0.160250377	21.5680	0.007430
0.200785963	22.8633	0.008782

Summary Report

Area

Single Point Surface Area at P/Po 0.20078596 : 79.5447 m²/g
 BET Surface Area: 83.1683 m²/g
 Langmuir Surface Area: 115.6623 m²/g

Sample Id: Titandioxid P25

BET Surface Area Report

BET Surface Area: 48.8459 ± 0.2792 m²/g
 Slope: 0.088383 ± 0.000506
 Y-Intercept: 0.000738 ± 0.000056
 C: 120.789707
 VM: 11.220697 cm³/g STP
 Correlation Coefficient: 9.999672e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P - 1)]
0.060036298	10.6162	0.006016
0.077749559	11.0564	0.007625
0.119419234	11.9696	0.011330
0.159303084	12.8099	0.014792

Langmuir Surface Area Report

Langmuir Surface Area: 63.7831 ± 1.9504 m²/g
 Slope: 0.068250 ± 0.002087
 Y-Intercept: 0.001668 ± 0.000232
 b: 0.024445
 VM: 14.652008 cm³/g STP
 Correlation Coefficient: 9.990663e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P)]
0.060036298	10.6162	0.005655
0.077749559	11.0564	0.007032
0.119419234	11.9696	0.009977
0.159303084	12.8099	0.012436

Summary ReportArea

Single Point Surface Area at P/Po 0.15930308 : 46.8807 m²/g
 BET Surface Area: 48.8459 m²/g
 Langmuir Surface Area: 63.7831 m²/g

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Sample Id: Alumina Sumitomo AKP-30 Lot # HB-5Z01

BET Surface Area Report

BET Surface Area: 5.5730 ± 0.0184 m²/g
Slope: 0.772552 ± 0.002556
Y-Intercept: 0.008569 ± 0.000344
C: 91.153644
VM: 1.280212 cm³/g STP
Correlation Coefficient: 9.999836e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P - 1)]
0.063896365	1.1762	0.058035
0.077723604	1.2261	0.068731
0.119860280	1.3486	0.100984
0.160250377	1.4453	0.132040
0.200785963	1.5320	0.163983

Langmuir Surface Area Report

Langmuir Surface Area: 7.7504 ± 0.2027 m²/g
Slope: 0.561674 ± 0.014692
Y-Intercept: 0.019776 ± 0.001976
b: 0.035210
VM: 1.780392 cm³/g STP
Correlation Coefficient: 9.989752e-01

Molecular Cross-section: 0.1620 nm²

Relative Pressure	Vol Adsorbed (cm ³ /g STP)	1/[VA*(Po/P)]
0.063896365	1.1762	0.054326
0.077723604	1.2261	0.063389
0.119860280	1.3486	0.088880
0.160250377	1.4453	0.110881
0.200785963	1.5320	0.131057

Summary Report

Area

Single Point Surface Area at P/Po 0.20078596 : 5.3302 m²/g

BET Surface Area: 5.5730 m²/g

Langmuir Surface Area: 7.7504 m²/g

Atomic Concentrations of Metal Oxide Powders

average of two spots

nd= not detected

Powder	%C	%O	%N	M=Ti, Si, Al	
				%M	M:O ratio
TiO ₂	33.6	43.6	0.6	22.2	'1:2
SiO ₂	6.3	60.7	nd	33.0	'1:2
Al ₂ O ₃	24.8	45.6	0.3	29.3	'2:3

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Atomic Concentration Curve Softkeys Summary
 a User Settings Previous New
 c Mode Area Height d Baseline Linear Integrated b Element Name
 e Regions C1 O1 N1 Si1

Atomic Concentration Table
 File: BLJ09286 Fred Gibson - SiO2 powder spot 1
 Lens: Small Area Omni-Focus Source: Standard

Element	Height (cts/s)	Sensitivity Factor	Concentration (%)
C1s	1244	0.296	5.31
O1s	34582	0.711	61.40
N1s	0	0.477	0.00
Si2p	8280	0.314	33.29

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 9/28/96 10:43

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Curve Softkeys Summary
 Atomic Concentration
 a User Settings Previous New b Element Name
 c Mode Area Height d Baseline Linear Integrated
 e Regions Cl O1 N1 Si1

Atomic Concentration Table
 File: BLJ09288 Fred Gibson- SiO2 powder spot 2
 Lens: Small Area Omni-Focus Source: Standard

Element	Height (cts/s)	Sensitivity Factor	Concentration (%)
Cl1s	1632	0.296	7.02
O1s	33656	0.711	60.25
N1s	0	0.477	0.00
Si2p	8077	0.314	32.74

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 9/28/96 12:09

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Curve Softkeys Summary
 Atomic Concentration
 a User Settings Previous New b Element Name
 c Mode Area Height d Baseline Linear Integrated
 e Regions Cl O1 N1 Til

Atomic Concentration Table
 File: BLJ09282 Fred Gibson - TiO2 powder spot 1
 Lens: Small Area Omni-Focus Source: Standard

Element	Height (cts/s)	Sensitivity Factor	Concentration (%)
Cl1s	5402	0.296	34.04
O1s	16457	0.711	43.18
N1s	165	0.477	0.65
Ti2p	15827	1.334	22.13

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 9/28/96 10:21

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Curve Softkeys Summary
 Atomic Concentration
 a User Settings Previous New b Element Name
 c Mode Area Height d Baseline Linear Integrated
 e Regions C1 O1 N1 Ti1

Atomic Concentration Table
 File: BLJ09284 Fred Gibson - TiO2 powder spot 2
 Lens: Small Area Omni-Focus Source: Standard

Element	Height (cts/s)	Sensitivity Factor	Concentration (%)
C1s	5312	0.296	33.23
O1s	16883	0.711	43.98
N1s	121	0.477	0.47
Ti2p	16078	1.334	22.32

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 9/28/96 10:25

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Curve Softkeys Summary
 Atomic Concentration
 a User Settings Previous New b Element Name
 c Mode Area Height d Baseline Linear Integrated
 e Regions C1 O1 N1 Si1 All

Atomic Concentration Table
 File: BLJ10072 Fred Gibson - Al2O3 powder spot 1
 Lens: Small Area Omni-Focus Source: Standard

Element	Area (cts-eV/s)	Sensitivity Factor	Concentration (%)
C1s	9469	0.296	21.67
O1s	50302	0.711	47.93
N1s	0	0.477	0.00
Si2p	0	0.339	0.00
Al2p	10500	0.234	30.40

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 10/7/96 10:07

Print Exclude Display More AC to AC Exit
 AC Table AC Table Region Curve Softkeys Summary
 Atomic Concentration
 a User Settings Previous New b Element Name
 c Mode Area Height d Baseline Linear Integrated
 e Regions C1 O1 N1 Al1 Si1

Atomic Concentration Table
 File: BLJ10078 Fred Gibson - Al2O3 powder spot 2
 Lens: Small Area Omni-Focus Source: Standard

Element	Area (cts-eV/s)	Sensitivity Factor	Concentration (%)
C1s	11799	0.296	27.97
O1s	43909	0.711	43.34
N1s	330	0.477	0.49
Al2p	9404	0.234	28.20
Si2p	0	0.339	0.00

Ion Gun: OFF X-ray: ON Mg Neutralizer:OFF Acquiring Technique: ESCA
 0.5mPa 10/9/96 17:10