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APPENDICES

APPENDIX A
Statistical Analysis

Statistical Analysis

1. Statistical analysis of residual stresses

1.1 Statistical analysis of localized residual stresses at 300 μm from interface of core-veneered specimens

Statistical analysis data of localized residual stresses at 300 μm from interface of core side were described in tables 29 to 36 and figure 77.

Table 29 Descriptive statistic of core side of group C-Dur

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-Dur	Mean	28.3473	.72608	
		95% Confidence Interval For Mean	Lower Bound		26.7900
			Upper Bound		29.9046
		5% Trimmed Mean	28.2654		
		Median	28.1000		
		Variance	7.908		
		Std. Deviation	2.81210		
		Minimum	23.94		
		Maximum	34.23		
		Range	10.29		
		Interquartile Range	4.0900		
		Skewness	.385		.580
		Kurtosis	-.289		1.121

Table 30 Descriptive statistic of core side of group C-VM7

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-VM7	Mean	27.4953	.51143	
		95% Confidence Interval For Mean	Lower Bound		26.3984
			Upper Bound		28.5922
		5% Trimmed Mean	27.5498		
		Median	27.7600		
		Variance	3.923		
		Std. Deviation	1.98077		
		Minimum	23.23		
		Maximum	30.78		
		Range	7.55		
		Interquartile Range	2.3300		
		Skewness	-.772		.580
		Kurtosis	.657		1.121

Table 31 Descriptive statistic of core side of group C-VM9

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-VM9	Mean	26.1093	.50897	
		95% Confidence Interval For Mean	Lower Bound	25.0177	
			Upper Bound	27.2010	
		5% Trimmed Mean	26.1437		
		Median	26.2600		
		Variance	3.886		
		Std. Deviation	1.97125		
		Minimum	22.29		
		Maximum	29.31		
		Range	7.02		
		Interquartile Range	2.9300		
		Skewness	-.419	.580	
		Kurtosis	-.362	1.121	

Table 32 Descriptive statistic of core side of group C-CK

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-CK	Mean	27.3967	.35088	
		95% Confidence Interval For Mean	Lower Bound	26.6441	
			Upper Bound	28.1492	
		5% Trimmed Mean	27.4646		
		Median	27.6200		
		Variance	1.847		
		Std. Deviation	1.35897		
		Minimum	24.20		
		Maximum	29.37		
		Range	5.17		
		Interquartile Range	2.2400		
		Skewness	-.893	.580	
		Kurtosis	.663	1.121	

Table 33 Descriptive statistic of core side of group C-emax

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-emax	Mean	27.2140	.41863	
		95% Confidence Interval For Mean	Lower Bound	26.3161	
			Upper Bound	28.1119	
		5% Trimmed Mean	27.3044		
		Median	28.0100		
		Variance	2.629		
		Std. Deviation	1.62137		
		Minimum	23.98		
		Maximum	28.82		
		Range	4.84		
		Interquartile Range	2.5700		
		Skewness	-1.090	.580	
		Kurtosis	-.117	1.121	

Table 34 Test of normality by Kolmogorov-Smirnov and Shapiro-Wilk

	GROUP	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Localized Residual Stresses	C-Dur	.125	15	.200(*)	.971	15	.866
	C-VM7	.172	15	.200(*)	.945	15	.456
	C-VM9	.140	15	.200(*)	.970	15	.859
	C-CK	.206	15	.200(*)	.933	15	.299
	C-emax	.248	15	.014	.820	15	.007

Table 35 Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
2.534	4	70	0.048

Table 36 Robust Tests of Equality of Means

	Statistic(a)	df1	df2	Sig.
Brown-Forsythe	2.385	4	55.235	0.062

a Asymptotically F distributed.

Localized residual stress (MPa)

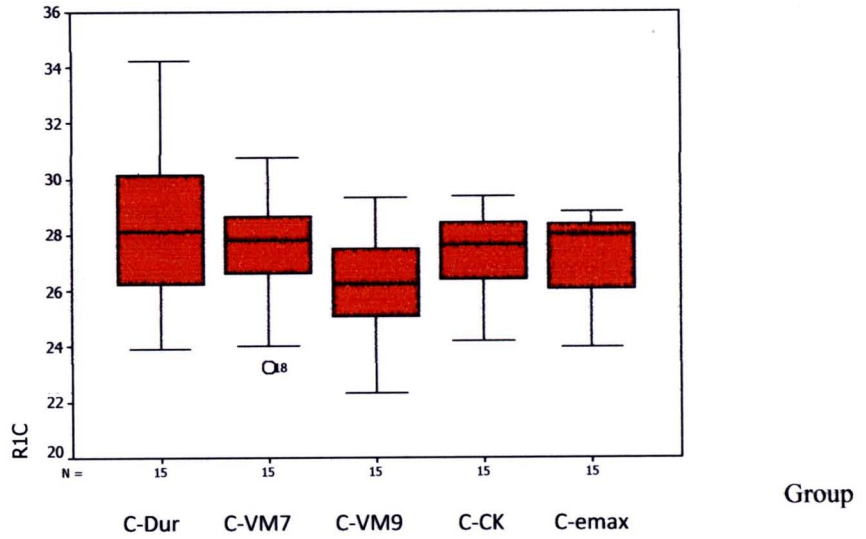


Figure 77 Normal Q-Q Plots of localized residual stress at 300 μm from interface of core side

Statistical analysis data of localized residual stresses at 300 μm from interface of veneering side were described in tables 37 to 45 and figure 78.

Table 37 Descriptive statistic of veneering side of group C-Dur

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-Dur	Mean	3.3513	.38490	
		95% Confidence Interval For Mean	Lower Bound	2.5258	
			Upper Bound	4.1769	
		5% Trimmed Mean	3.1754		
		Median	3.0000		
		Variance	2.222		
		Std. Deviation	1.49070		
		Minimum	2.04		
		Maximum	7.83		
		Range	5.79		
		Interquartile Range	1.3100		
		Skewness	2.215	.580	
		Kurtosis	5.674	1.121	

Table 38 Descriptive statistic of veneering side of group C-VM7

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-VM7	Mean	2.2600	.08621	
		95% Confidence Interval For Mean	Lower Bound		2.0751
			Upper Bound		2.4449
		5% Trimmed Mean	2.2639		
		Median	2.2900		
		Variance	.111		
		Std. Deviation	.33389		
		Minimum	1.65		
		Maximum	2.80		
		Range	1.15		
		Interquartile Range	.4800		
		Skewness	-.189		.580
		Kurtosis	-.372		1.121

Table 39 Descriptive statistic of veneering side of group C-VM9

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-VM9	Mean	2.0493	.05199	
		95% Confidence Interval For Mean	Lower Bound		1.9378
			Upper Bound		2.1608
		5% Trimmed Mean	2.0459		
		Median	2.0600		
		Variance	.041		
		Std. Deviation	.20137		
		Minimum	1.74		
		Maximum	2.42		
		Range	.68		
		Interquartile Range	.3300		
		Skewness	.173		.580
		Kurtosis	-.822		1.121

Table 40 Descriptive statistic of veneering side of group C-CK

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-CK	Mean	1.7900	.08023	
		95% Confidence Interval For Mean	Lower Bound	1.6179	
			Upper Bound	1.9621	
		5% Trimmed Mean	1.7822		
		Median	1.7300		
		Variance	.097		
		Std. Deviation	.31071		
		Minimum	1.33		
		Maximum	2.39		
		Range	1.06		
		Interquartile Range	.3900		
		Skewness	.565	.580	
		Kurtosis	-.002	1.121	

Table 41 Descriptive statistic of veneering side of group C-emax

	GROUPS		Statistic	Std. Error	
Localized Residual stress	C-emax	Mean	2.2127	.06603	
		95% Confidence Interval For Mean	Lower Bound	2.0711	
			Upper Bound	2.3543	
		5% Trimmed Mean	2.2057		
		Median	2.2000		
		Variance	.065		
		Std. Deviation	.25572		
		Minimum	1.76		
		Maximum	2.79		
		Range	1.03		
		Interquartile Range	.2800		
		Skewness	.634	.580	
		Kurtosis	.854	1.121	

Table 42 Test of normality by Kolmogorov-Smirnov and Shapiro-Wilk

	GROUP	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Localized Residual Stresses	C-Dur	.244	15	.016	.758	15	.001
	C-VM7	.155	15	.200(*)	.961	15	.715
	C-VM9	.133	15	.200(*)	.969	15	.848
	C-CK	.157	15	.200(*)	.944	15	.439
	C-emax	.166	15	.200(*)	.957	15	.637

Table 43 Multiple comparisons of localized residual stresses at 300 μm from interface of veneering side among 5 groups; result of Tamhane

GROUPS	GROUPS	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
C-Dur	C-VM7	1.0913	.39443	.133	-.1948	2.3775
	C-VM9	1.3020(*)	.38839	.044	.0229	2.5811
	C-CK	1.5613(*)	.39317	.012	.2768	2.8459
	C-emax	1.1387	.39052	.102	-.1428	2.4201
C-VM7	C-Dur	-1.0913	.39443	.133	-2.3775	.1948
	C-VM9	.2107	.10068	.386	-.1009	.5222
	C-CK	.4700(*)	.11776	.004	.1121	.8279
	C-emax	.0473	.10859	1.000	-.2844	.3791
C-VM9	C-Dur	-1.3020(*)	.38839	.044	-2.5811	-.0229
	C-VM7	-.2107	.10068	.386	-.5222	.1009
	C-CK	.2593	.09560	.115	-.0352	.5539
	C-emax	-.1633	.08404	.476	-.4198	.0931
C-CK	C-Dur	-1.5613(*)	.39317	.012	-2.8459	-.2768
	C-VM7	-.4700(*)	.11776	.004	-.8279	-.1121
	C-VM9	-.2593	.09560	.115	-.5539	.0352
	C-emax	-.4227(*)	.10390	.004	-.7393	-.1061
C-emax	C-Dur	-1.1387	.39052	.102	-2.4201	.1428
	C-VM7	-.0473	.10859	1.000	-.3791	.2844
	C-VM9	.1633	.08404	.476	-.0931	.4198
	C-CK	.4227(*)	.10390	.004	.1061	.7393

* The mean difference is significant at the .05 level.

Table 44 Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
6.285	4	70	.000

Table 45 Robust Tests of Equality of Means

	Statistic(a)	df1	df2	Sig.
Brown-Forsythe	10.588	4	18.134	.000

a Asymptotically F distributed.

Localized residual stress (MPa)

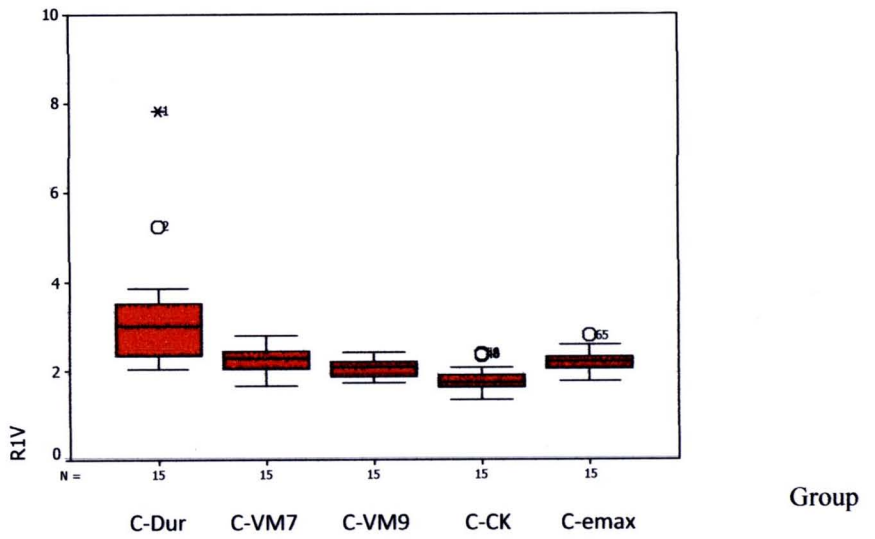


Figure 78 Normal Q-Q Plots of localized residual stress at 300 μm from interface of veneering side

1.1.1 Statistical analysis of localized residual stresses of monolithic specimens

Statistical analysis data of localized residual stresses of Cercon[®] ceramics core surface of monolithic specimens were described in table 46.

Table 46 Descriptive statistic of Cercon[®] ceramics core of monolithic specimens

	GROUPS		Statistic	Std. Error	
localized residual stress	Cercon [®] core	Mean	26.5580	.30786	
		95% Confidence Interval For Mean			
			Lower Bound	25.8977	
			Upper Bound	27.2183	
		5% Trimmed Mean		26.5256	
		Median		26.4700	
		Variance		1.422	
		Std. Deviation		1.19235	
		Minimum		24.83	
		Maximum		28.87	
		Range		4.04	
		Interquartile Range		1.6000	
		Skewness		.623	.580
Kurtosis		-.180	1.121		

Statistical analysis data of localized residual stresses of veneering ceramics surface of monolithic specimens were described in tables 47 to 55 and figure 79.



Table 47 Descriptive statistic of group Dur of monolithic specimens

	GROUPS		Statistic	Std. Error	
localized residual stress	Dur	Mean	1.9500	.08309	
		95% Confidence Interval For Mean	Lower Bound	1.7718	
			Upper Bound	2.1282	
		5% Trimmed Mean		1.9256	
		Median		1.8400	
		Variance		.104	
		Std. Deviation		.32183	
		Minimum		1.67	
		Maximum		2.67	
		Range		1.00	
		Interquartile Range		.2400	
		Skewness		1.562	.580
		Kurtosis		1.312	1.121

Table 48 Descriptive statistic of group VM7 of monolithic specimens

	GROUPS		Statistic	Std. Error	
localized residual stress	VM7	Mean	1.4333	.04042	
		95% Confidence Interval For Mean	Lower Bound	1.3466	
			Upper Bound	1.5200	
		5% Trimmed Mean		1.4137	
		Median		1.3800	
		Variance		.025	
		Std. Deviation		.15656	
		Minimum		1.30	
		Maximum		1.92	
		Range		.62	
		Interquartile Range		.1100	
		Skewness		2.499	.580
		Kurtosis		6.831	1.121

Table 49 Descriptive statistic of group VM9 of monolithic specimens

	GROUPS		Statistic	Std. Error
localized residual stress	VM9	Mean	1.4980	.05644
		95% Confidence Interval For Mean		
			Lower Bound	1.3770
			Upper Bound	1.6190
		5% Trimmed Mean	1.5072	
		Median	1.6000	
		Variance	.048	
		Std. Deviation	.21857	
		Minimum	1.06	
		Maximum	1.77	
		Range	.71	
		Interquartile Range	.3800	
		Skewness	-.411	.580
Kurtosis	-1.042	1.121		

Table 50 Descriptive statistic of group CK of monolithic specimens

	GROUPS		Statistic	Std. Error
localized residual stress	CK	Mean	1.3207	.01694
		95% Confidence Interval For Mean		
			Lower Bound	1.2843
			Upper Bound	1.3570
		5% Trimmed Mean	1.3219	
		Median	1.3500	
		Variance	.004	
		Std. Deviation	.06563	
		Minimum	1.22	
		Maximum	1.40	
		Range	.18	
		Interquartile Range	.1200	
		Skewness	-.394	.580
Kurtosis	-1.326	1.121		

Table 51 Descriptive statistic of group emax of monolithic specimens

	GROUPS		Statistic	Std. Error	
localized residual stress	emax	Mean	1.6067	.04364	
		95% Confidence Interval For Mean	Lower Bound	1.5131	
			Upper Bound	1.7003	
		5% Trimmed Mean	1.6202		
		Median	1.6400		
		Variance	.029		
		Std. Deviation	.16902		
		Minimum	1.14		
		Maximum	1.83		
		Range	.69		
		Interquartile Range	.1400		
		Skewness	-1.657	.580	
		Kurtosis	3.489	1.121	

Table 52 Test of normality by Kolmogorov-Smirnov and Shapiro-Wilk

	GROUP	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Localized Residual Stresses	Dur	.263	15	.006	.758	15	.001
	VM7	.318	15	.000	.683	15	.000
	VM9	.232	15	.029	.872	15	.036
	CK	.206	15	.087	.900	15	.096
	emax	.214	15	.063	.851	15	.018

Table 53 Multiple comparisons of localized residual stresses of monolithic specimens of veneering side among 5 groups; result of Tamhane

GROUPS	GROUPS	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Dur	VM7	.5167(*)	.09241	.000	.2267	.8066
	VM9	.4520(*)	.10045	.001	.1433	.7607
	CK	.6293(*)	.08480	.000	.3521	.9066
	emax	.3433(*)	.09386	.014	.0503	.6364
VM7	Dur	-.5167(*)	.09241	.000	-.8066	-.2267
	VM9	-.0647	.06942	.989	-.2774	.1481
	CK	.1127	.04383	.173	-.0262	.2515
	emax	-.1733	.05948	.068	-.3541	.0075
VM9	Dur	-.4520(*)	.10045	.001	-.7607	-.1433
	VM7	.0647	.06942	.989	-.1481	.2774
	CK	.1773	.05892	.078	-.0127	.3674
	emax	-.1087	.07134	.778	-.3265	.1092
CK	Dur	-.6293(*)	.08480	.000	-.9066	-.3521
	VM7	-.1127	.04383	.173	-.2515	.0262
	VM9	-.1773	.05892	.078	-.3674	.0127
	emax	-.2860(*)	.04681	.000	-.4350	-.1370
emax	Dur	-.3433(*)	.09386	.014	-.6364	-.0503
	VM7	.1733	.05948	.068	-.0075	.3541
	VM9	.1087	.07134	.778	-.1092	.3265
	CK	.2860(*)	.04681	.000	.1370	.4350

* The mean difference is significant at the .05 level.

Table 54 Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
5.209	4	70	.001

Table 55 Robust Tests of Equality of Means

	Statistic(a)	df1	df2	Sig.
Brown-Forsythe	20.789	4	42.226	.000

a Asymptotically F distributed.

Localized residual stress (MPa)

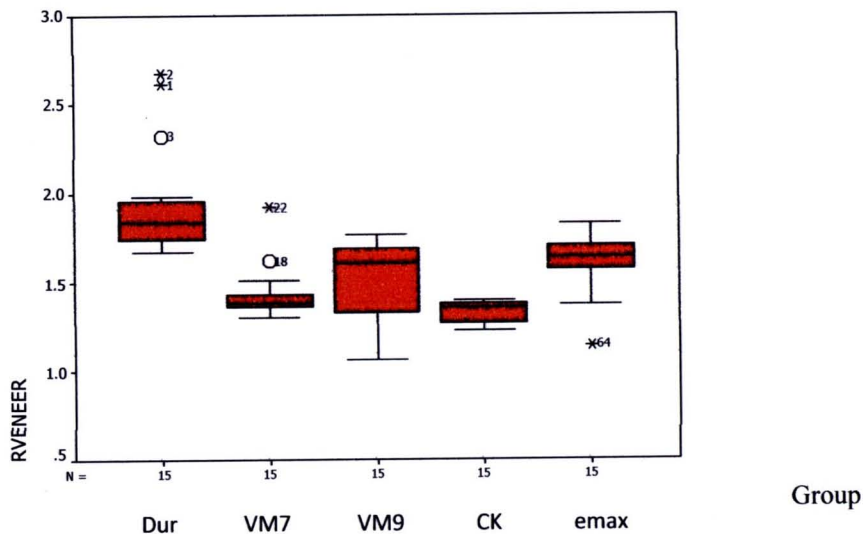


Figure 79 Normal Q-Q Plots of localized residual stress of monolithic specimens of veneering side

2. Statistical analysis of shear bond strength

Statistical analysis data of shear bond strength were described in tables 56 to 64 and figure 80.

Table 56 Descriptive statistic of group C-Dur

	GROUPS		Statistic	Std. Error	
SBS	C-Dur	Mean	22.5527	1.32814	
		95% Confidence Interval For Mean	Lower Bound	19.7041	
			Upper Bound	25.4012	
		5% Trimmed Mean	22.4235		
		Median	21.5600		
		Variance	26.459		
		Std. Deviation	5.14385		
		Minimum	16.03		
		Maximum	31.40		
		Range	15.37		
		Interquartile Range	8.0700		
		Skewness	.710	.580	
		Kurtosis	-.569	1.121	

Table 57 Descriptive statistic of group C-VM7

	GROUPS		Statistic	Std. Error
SBS	C-VM7	Mean	19.7460	1.85230
		95% Confidence Interval For Mean	Lower Bound	
			Upper Bound	23.7188
		5% Trimmed Mean	19.5178	
		Median	17.5400	
		Variance	51.465	
		Std. Deviation	7.17393	
		Minimum	10.64	
		Maximum	32.96	
		Range	22.32	
		Interquartile Range	12.1600	
		Skewness	.584	.580
		Kurtosis	-.784	1.121

Table 58 Descriptive statistic of group C-VM9

	GROUPS		Statistic	Std. Error
SBS	C-VM9	Mean	25.8560	.70830
		95% Confidence Interval For Mean	Lower Bound	
			Upper Bound	27.3752
		5% Trimmed Mean	25.7417	
		Median	24.7400	
		Variance	7.525	
		Std. Deviation	2.74323	
		Minimum	22.81	
		Maximum	30.96	
		Range	8.15	
		Interquartile Range	3.2400	
		Skewness	1.027	.580
		Kurtosis	-.209	1.121

Table 59 Descriptive statistic of group C-CK

	GROUPS		Statistic	Std. Error	
SBS	C-CK	Mean	25.4187	1.26567	
		95% Confidence Interval For Mean	Lower Bound	22.7041	
			Upper Bound	28.1333	
		5% Trimmed Mean		25.3630	
		Median		24.2300	
		Variance		24.029	
		Std. Deviation		4.90193	
		Minimum		18.44	
		Maximum		33.40	
		Range		14.96	
		Interquartile Range		6.8300	
		Skewness		.305	.580
		Kurtosis		-1.042	1.121

Table 60 Descriptive statistic of group C-emax

	GROUPS		Statistic	Std. Error	
SBS	C-emax	Mean	19.9400	1.36428	
		95% Confidence Interval For Mean	Lower Bound	17.0139	
			Upper Bound	22.8661	
		5% Trimmed Mean		19.8522	
		Median		19.4200	
		Variance		27.919	
		Std. Deviation		5.28383	
		Minimum		12.76	
		Maximum		28.70	
		Range		15.94	
		Interquartile Range		10.6200	
		Skewness		.000	.580
		Kurtosis		-1.369	1.121

Table 61 Test of normality by Kolmogorov-Smirnov and Shapiro-Wilk

	GROUP	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
SBS	Dur	.234	15	.026	.881	15	.050
	VM7	.154	15	.200(*)	.929	15	.263
	VM9	.199	15	.111	.847	15	.016
	CK	.138	15	.200(*)	.935	15	.329
	emax	.202	15	.102	.919	15	.185

Table 62 Multiple comparisons of shear bond strength among 5 groups; result of Tamhane

GROUPS	GROUPS	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
C-Dur	C-VM7	2.8067	2.27924	.926	-4.1776	9.7909
	C-VM9	-3.3033	1.50520	.331	-7.9982	1.3915
	C-CK	-2.8660	1.83463	.750	-8.4401	2.7081
	C-emax	2.6127	1.90400	.864	-3.1714	8.3968
C-VM7	C-Dur	-2.8067	2.27924	.926	-9.7909	4.1776
	C-VM9	-6.1100	1.98310	.063	-12.4280	.2080
	C-CK	-5.6727	2.24342	.168	-12.5642	1.2188
	C-emax	-.1940	2.30049	1.000	-7.2344	6.8464
C-VM9	C-Dur	3.3033	1.50520	.331	-1.3915	7.9982
	C-VM7	6.1100	1.98310	.063	-.2080	12.4280
	C-CK	.4373	1.45038	1.000	-4.0722	4.9469
	C-emax	5.9160(*)	1.53719	.009	1.1128	10.7192
C-CK	C-Dur	2.8660	1.83463	.750	-2.7081	8.4401
	C-VM7	5.6727	2.24342	.168	-1.2188	12.5642
	C-VM9	-.4373	1.45038	1.000	-4.9469	4.0722
	C-emax	5.4787	1.86096	.063	-.1770	11.1344
C-emax	C-Dur	-2.6127	1.90400	.864	-8.3968	3.1714
	C-VM7	.1940	2.30049	1.000	-6.8464	7.2344
	C-VM9	-5.9160(*)	1.53719	.009	-10.7192	-1.1128
	C-CK	-5.4787	1.86096	.063	-11.1344	.1770

* The mean difference is significant at the .05 level.

Table 63 Test of homogeneity of variance

Levene Statistic	df1	df2	Sig.
3.562	4	70	.011

Table 64 Robust Tests of Equality of Means

	Statistic(a)	df1	df2	Sig.
Brown-Forsythe	4.601	4	55.498	.003

a Asymptotically F distributed.

Shear bond strength (MPa)

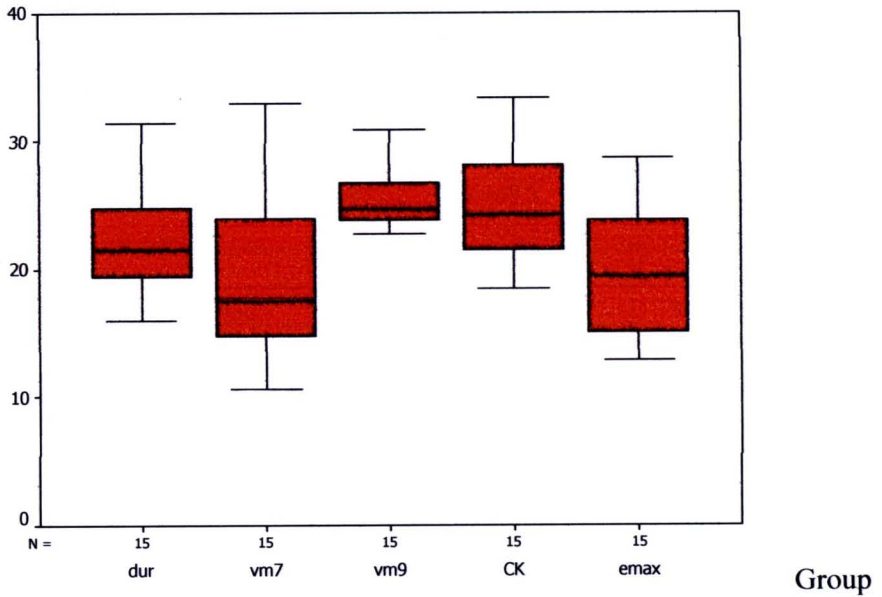


Figure 80 Normal Q-Q Plots of shear bond strength

3. Linear regression analysis

Statistical analysis data of linear regression analysis of shear bond strength and localized residual stress of localized residual stresses near the interface of core ceramic were described in tables 65 to 66 and figure 81.

Table 65 Model Summary(b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.267(a)	.071	.058	2.11225

a Predictors: (Constant), SBS

b Dependent Variable: CTE

Table 66 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.657	1.003		29.567	.000
	SBS	-.101	.043	-.267	-2.363	.021

a Dependent Variable: CTE

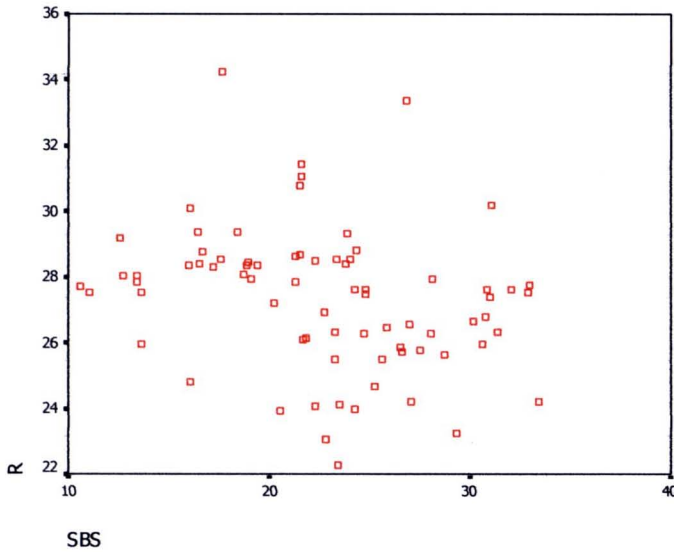


Figure 81 Scatter Plots of shear bond strength and localized residual stresses near the interface of core ceramic

Statistical analysis data of linear regression analysis of shear bond strength and localized residual stress of localized residual stresses near the interface of veneering ceramic were described in tables 67 to 68 and figure 82.

Table 67 Model Summary(b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.000(a)	.000	-.014	.88367

a Predictors: (Constant), SBS

b Dependent Variable: CTE

Table 68 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.333	.420		5.560	.000
	SBS	-2.927E-05	.018	.000	-.002	.999

a Dependent Variable: CTE

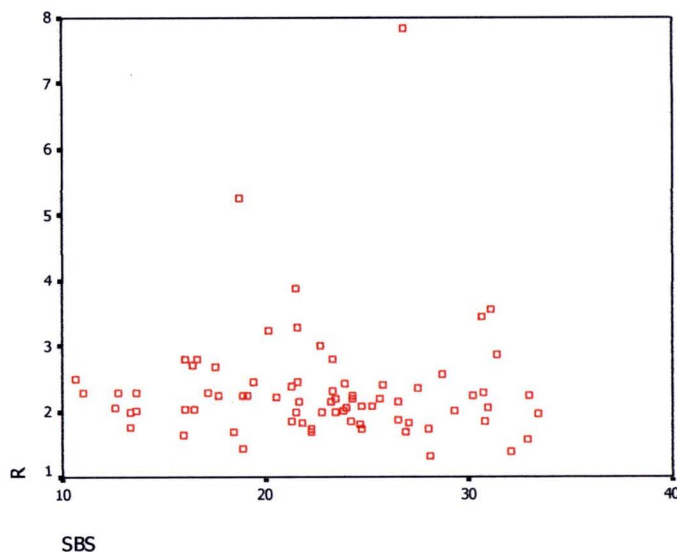


Figure 82 Scatter Plots of shear bond strength and localized residual stresses near the interface of veneering ceramic

Statistical analysis data of linear regression analysis of CTE difference and shear bond strength were described in tables 69 to 70 and figure 83.

Table 69 Model Summary(b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.220(a)	.048	.035	.98464

a Predictors: (Constant), SBS

b Dependent Variable: CTE

Table 70 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.611	.468		5.584	.000
	SBS	-.039	.020	-.220	-1.929	.058

a Dependent Variable: CTE

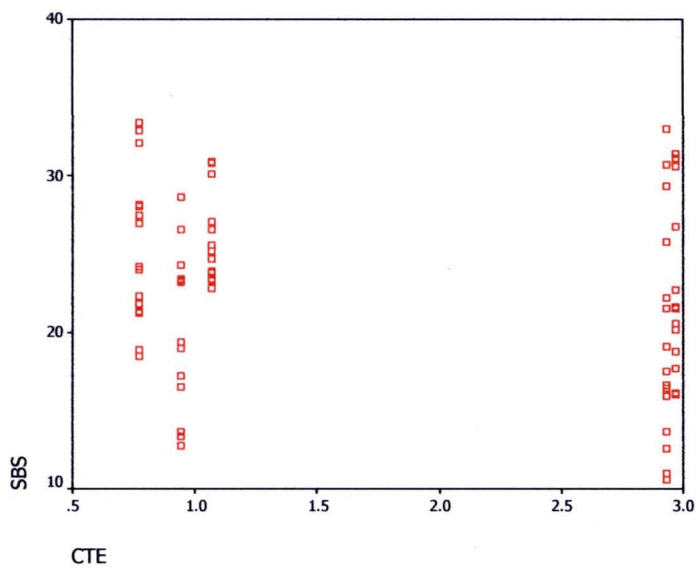


Figure 83 Scatter Plots of shear bond strength and CTE difference

APPENDIX B
Weibull analysis

Weibull Analysis

Weibull analysis of shear bond strength

Weibull analysis of shear bond strength determined and showed in tables 71 to 90 and figures 84 to 93.

Table 71 Weibull analysis of shear bond strength for group C-Dur

Shear bond strength (MPa)	Rank	Median Ranks	1/(1-Median Rank)	$\ln(\ln(1/(1-\text{Median Rank})))$	$\ln(\text{Shear bond strength})$
16.03	1	0.067307692	1.072164948	-2.663843085	2.774461967
16.09	2	0.163461538	1.195402299	-1.72326315	2.778197961
17.67	3	0.259615385	1.350649351	-1.202023115	2.871868286
18.74	4	0.355769231	1.552238806	-0.821666515	2.930660277
20.19	5	0.451923077	1.824561404	-0.508595394	3.005187432
20.55	6	0.548076923	2.212765957	-0.230365445	3.022860941
21.52	7	0.644230769	2.810810811	0.032924962	3.068982735
21.56	8	0.740384615	3.851851852	0.299032932	3.070839746
21.59	9	0.836538462	6.117647059	0.593977217	3.072230245
21.68	10	0.932692308	14.85714286	0.992688929	3.076390177
22.75	11	0.932692308	14.85714286	0.992688929	3.124565145
26.81	12	0.932692308	14.85714286	0.992688929	3.288774952
30.62	13	0.932692308	14.85714286	0.992688929	3.42165339
31.09	14	0.932692308	14.85714286	0.992688929	3.436886224
31.40	15	0.932692308	14.85714286	0.992688929	3.446807893

Table 72 Results of linear regression for shear bond strength for group C-Dur**SAMMARY OUTPUT**

<i>Regression Statistics</i>	
Multiple R	0.853886191
R Square	0.729121627
Adjusted R Square	0.708284829
Standard Error	0.626692505
Observations	15

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	13.74288779	13.74288779	34.99201886	5.10535E-05
Residual	13	5.105665439	0.392743495		
Total	14	18.84855323			

	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-13.91104164	2.354213944	-5.908996365	5.15933E-05	-18.99701165	-8.825071634	-18.99701165	-8.825071634
ln(Shear bond strength)	4.492267434	0.759418378	5.915405215	5.10535E-05	2.851643776	6.132891092	2.851643776	6.132891092

Beta (or shape parameter) = 4.492267434

Alpha (or characteristic life) = 22.12401639

NB: *df* = Degree of freedom, *MS* = Mean square, *SS* = Sum of square, *F* = *F* test, *P-value* = Probability of value.

Table 73 Residual output of shear bond strength for group C-Dur

<i>Observation</i>	<i>Predicted $\ln(\ln(1/(1-\text{Median Rank})))$</i>	<i>Residuals</i>
1	-1.447416501	-1.216426584
2	-1.430633415	-0.292629735
3	-1.009841263	-0.192181852
4	-0.745731919	-0.075934596
5	-0.410936005	-0.097659388
6	-0.331541878	0.101176433
7	-0.124350443	0.157275405
8	-0.116008255	0.415041186
9	-0.109761763	0.70373898
10	-0.091074236	1.083763166
11	0.125340607	0.867348322
12	0.863014975	0.129673954
13	1.459940455	-0.467251525
14	1.528370418	-0.535681489
15	1.572941208	-0.580252278

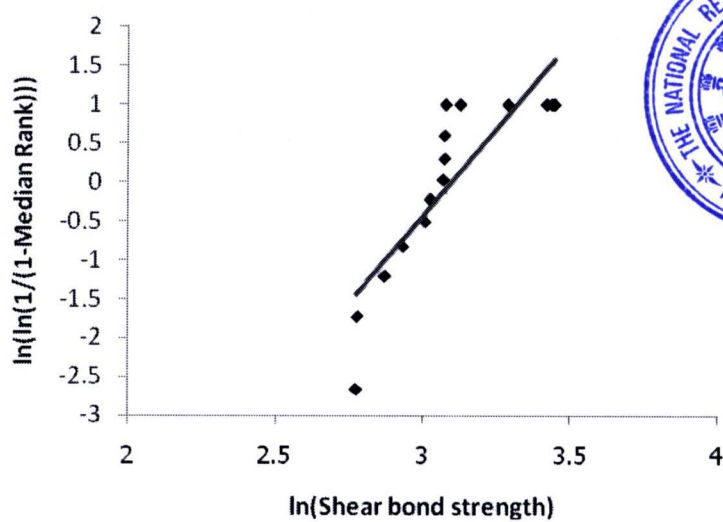
**Figure 84** Line fit plot of group Dur

Table 74 Weibull reliability calculation of shear bond strength for group C-Dur

Beta (or shape parameter) = 4.492267434 Alpha (or characteristic life) = 22.12401639		Shear bond strength (Mpa)	Survival probability	Reliability
		5	0.001253716	0.998746284
		7	0.00567131	0.99432869
		9	0.017434531	0.982565469
		11	0.042398663	0.957601337
		13	0.087673879	0.912326121
		15	0.160134083	0.839865917
		17	0.263766774	0.736233226
		19	0.396300178	0.603699822
		21	0.546689398	0.453310602
		23	0.695953805	0.304046195
		25	0.822987851	0.177012149
		27	0.91342092	0.08657908
		29	0.965707502	0.034292498
		31	0.98944337	0.01055663
		33	0.997586639	0.002413361
		Reliability	Shear bond strength	
	0.01	31.08175989		
	0.1	26.63758808		
	0.5	20.39064509		
	0.9	13.40625396		
	0.95	11.42134768		
	0.99	7.945841699		

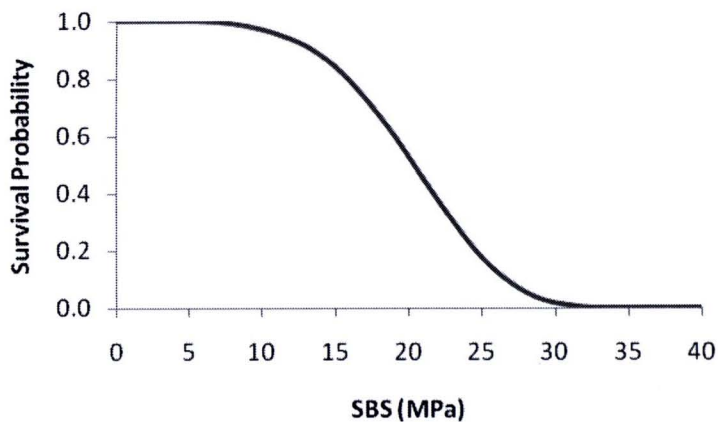
**Figure 85** Survival graph of group C-Dur

Table 75 Weibull analysis of shear bond strength for group C-VM7

Shear bond strength (MPa)	Rank	Median Ranks	1/(1-Median Rank)	ln(ln(1/(1-Median Rank)))	ln(Shear bond strength)
10.64	1	0.067307692	1.072164948	-2.663843085	2.364620484
11.03	2	0.163461538	1.195402299	-1.72326315	2.400618833
12.60	3	0.259615385	1.350649351	-1.202023115	2.533696814
13.64	4	0.355769231	1.552238806	-0.821666515	2.613006652
15.96	5	0.451923077	1.824561404	-0.508595394	2.770085592
16.44	6	0.548076923	2.212765957	-0.230365445	2.79971739
16.64	7	0.644230769	2.810810811	0.032924962	2.811809435
17.54	8	0.740384615	3.851851852	0.299032932	2.864483987
19.11	9	0.836538462	6.117647059	0.593977217	2.950211758
21.52	10	0.932692308	14.85714286	0.992688929	3.068982735
22.26	11	0.932692308	14.85714286	0.992688929	3.102791346
25.80	12	0.932692308	14.85714286	0.992688929	3.250374492
29.30	13	0.932692308	14.85714286	0.992688929	3.377587516
30.75	14	0.932692308	14.85714286	0.992688929	3.425889994
32.96	15	0.932692308	14.85714286	0.992688929	3.495294705

Table 76 Results of linear regression for shear bond strength for group C-VM7**SUMMARY OUTPUT**

<i>Regression Statistics</i>	
Multiple R	0.914410536
R Square	0.836146629
Adjusted R Square	0.823542523
Standard Error	0.487410661
Observations	15

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	15.7601542	15.76015	66.33923	1.83621E-06
Residual	13	3.08839899	0.237569		
Total	14	18.84855323			

	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-8.580321378	1.05877564	-8.104	1.94E-06	-10.86766709	-6.292975668	-10.86766709	-6.292975668
ln(Shear bond strength)	2.930402916	0.35978424	8.14489	1.84E-06	2.153136331	3.707669501	2.153136331	3.707669501

Beta (or shape parameter) = 2.930402916

Alpha (or characteristic life) = 18.69086094

NB: *df* = Degree of freedom, *MS* = Mean square, *SS* = Sum of square, *F* = *F* test, *P-value* = Probability of value.

Table 77 Residual output of shear bond strength for group C-VM7

<i>Observation</i>	<i>Predicted $\ln(\ln(1/(1-\text{Median Rank})))$</i>	<i>Residuals</i>
1	-1.651030617	-1.0128125
2	-1.545540949	-0.1777222
3	-1.155568846	-0.0464543
4	-0.923159064	0.10149255
5	-0.462854482	-0.0457409
6	-0.376021376	0.14565593
7	-0.340586809	0.37351177
8	-0.18622915	0.48526208
9	0.064987761	0.52898946
10	0.413034578	0.57965435
11	0.512107429	0.4805815
12	0.944585511	0.04810342
13	1.317370928	-0.324682
14	1.458916651	-0.4662277
15	1.662300418	-0.6696115

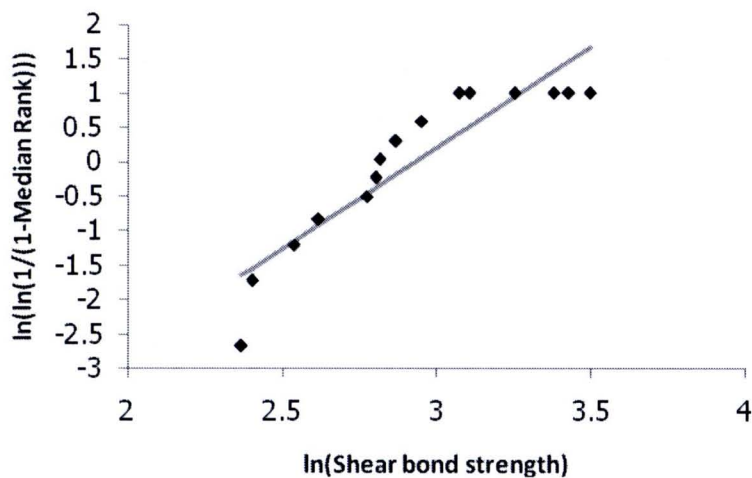
**Figure 86** Line fit plot of group C-VM7

Table 78 Weibull reliability calculation of shear bond strength for group C-VM7

Beta (or shape parameter) = 2.930402916 Alpha (or characteristic life) = 18.69086094		Shear bond strength	Survival probability	Reliability	
		5	0.020764858	0.979235142	
		7	0.054693425	0.945306575	
		9	0.110833255	0.889166745	
		11	0.190632123	0.809367877	
		13	0.291834519	0.708165481	
		15	0.408355771	0.591644229	
		17	0.531115714	0.468884286	
		19	0.649798071	0.350201929	
		21	0.755087448	0.244912552	
		23	0.840648694	0.159351306	
		25	0.904151972	0.095848028	
		27	0.947040807	0.052959193	
		29	0.973288817	0.026711183	
		31	0.987778753	0.012221247	
		33	0.994959209	0.005040791	
		Reliability	Shear bond strength		
		0.01	31.47472159		
		0.1	24.8447946		
	0.5	16.4934305			
	0.9	8.671977329			
	0.95	6.78324466			
	0.99	3.889317737			

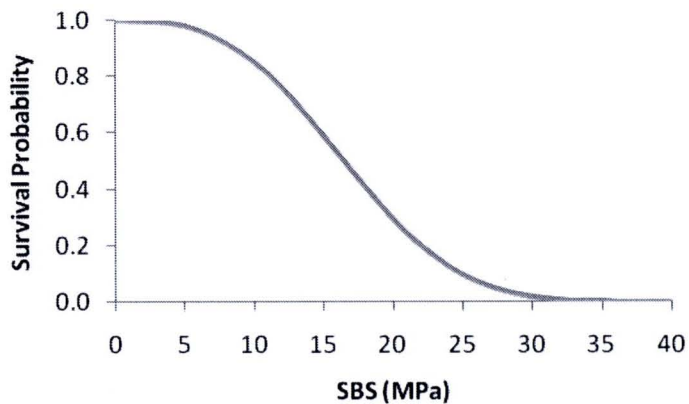
**Figure 87** Survival graph of group C-VM7

Table 79 Weibull analysis of shear bond strength for group C-VM9

Shear bond strength (MPa)	Rank	Median Ranks	1/(1-Median Rank)	$\ln(\ln(1/(1-\text{Median Rank})))$	$\ln(\text{Shear bond strength})$
22.81	1	0.067307692	1.072164948	-2.663843085	3.127199036
23.28	2	0.163461538	1.195402299	-1.72326315	3.147594623
23.44	3	0.259615385	1.350649351	-1.202023115	3.154443965
23.82	4	0.355769231	1.552238806	-0.821666515	3.170525564
23.88	5	0.451923077	1.824561404	-0.508595394	3.173041289
24.68	6	0.548076923	2.212765957	-0.230365445	3.205993199
24.74	7	0.644230769	2.810810811	0.032924962	3.208421367
24.74	8	0.740384615	3.851851852	0.299032932	3.208421367
25.24	9	0.836538462	6.117647059	0.593977217	3.228430038
25.63	10	0.932692308	14.85714286	0.992688929	3.24376354
26.57	11	0.932692308	14.85714286	0.992688929	3.27978276
27.06	12	0.932692308	14.85714286	0.992688929	3.298056623
30.18	13	0.932692308	14.85714286	0.992688929	3.407179453
30.81	14	0.932692308	14.85714286	0.992688929	3.427839313
30.96	15	0.932692308	14.85714286	0.992688929	3.432696049

Table 80 Results of linear regression for shear bond strength for group C-VM9**SUMMARY OUTPUT**

Regression Statistics	
Multiple R	0.779028461
R Square	0.606885343
Adjusted R Square	0.576645754
Standard Error	0.754965233
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	1	11.4389107	11.43891	20.06923	0.00061972
Residual	13	7.409642532	0.569973		
Total	14	18.84855323			

	Coefficients	Std. Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-28.79785424	6.427252556	-4.48059	0.000619	-42.68308918	-14.91261929	-42.68308918	-14.91261929
ln(Shear bond strength)	8.862042687	1.978192062	4.47987	0.00062	4.588418567	13.13566681	4.588418567	13.13566681

Beta (or shape parameter) = 8.862042687

Alpha (or characteristic life) = 25.77932862

NB: df = Degree of freedom, MS = Mean square, SS = Sum of square, F = F test, P-value = Probability of value.

Table 81 Residual output of shear bond strength for group C-VM9

<i>Observation</i>	<i>Predicted $\ln(\ln(1/(1-\text{Median Rank})))$</i>	<i>Residuals</i>
1	-1.084482885	-1.5793602
2	-0.903736327	-0.819526824
3	-0.843037167	-0.358985948
4	-0.700521348	-0.121145167
5	-0.678226889	0.169631496
6	-0.386205652	0.155840207
7	-0.364687124	0.397612086
8	-0.364687124	0.663720056
9	-0.18736943	0.781346647
10	-0.051483274	1.044172204
11	0.267720585	0.724968344
12	0.429664339	0.56302459
13	1.396715522	-0.404026593
14	1.579804077	-0.587115147
15	1.622844679	-0.63015575

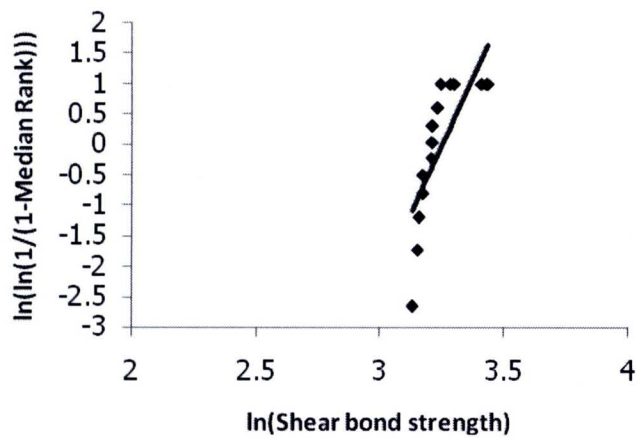
**Figure 88** Line fit plot of group C-VM9

Table 82 Weibull reliability calculation of shear bond strength for group C-VM9

Beta (or shape parameter) = 8.862042687 Alpha (or characteristic life) = 25.77932862		Shear bond strength	Survival probability	Reliability	
		5	0.000000487	0.999999513	
		7	0.000009606	0.999990394	
		9	0.000089078	0.999910922	
		11	0.000527233	0.999472767	
		13	0.002315054	0.997684946	
		15	0.00820416	0.99179584	
		17	0.024667734	0.975332266	
		19	0.064739187	0.935260813	
		21	0.149971595	0.850028405	
		23	0.305015421	0.694984579	
		25	0.533185978	0.466814022	
		27	0.778383501	0.221616499	
		29	0.94148487	0.05851513	
		31	0.994058548	0.005941452	
		33	0.99986637	0.00013363	
		Reliability	Shear bond strength		
		0.01	30.62758666		
		0.1	28.32332993		
	0.5	24.73490349			
	0.9	19.99814865			
	0.95	18.43799981			
	0.99	15.34037787			

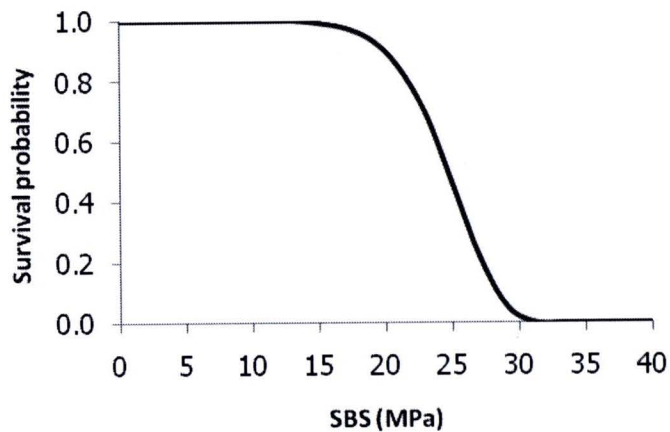
**Figure 89** Survival graph of group C-VM9

Table 83 Weibull analysis of shear bond strength for group C-CK

Shear bond strength (MPa)	Rank	Median Ranks	$1/(1-\text{Median Rank})$	$\ln(\ln(1/(1-\text{Median Rank})))$	$\ln(\text{Shear bond strength})$
18.44	1	0.067307692	1.072164948	-2.663843085	2.914522218
18.90	2	0.163461538	1.195402299	-1.72326315	2.939161922
21.28	3	0.259615385	1.350649351	-1.202023115	3.057767664
21.30	4	0.355769231	1.552238806	-0.821666515	3.058707073
21.83	5	0.451923077	1.824561404	-0.508595394	3.083285171
22.29	6	0.548076923	2.212765957	-0.230365445	3.104138147
24.01	7	0.644230769	2.810810811	0.032924962	3.17847041
24.23	8	0.740384615	3.851851852	0.299032932	3.187591535
26.94	9	0.836538462	6.117647059	0.593977217	3.293612171
27.51	10	0.932692308	14.85714286	0.992688929	3.314549575
28.03	11	0.932692308	14.85714286	0.992688929	3.333275365
28.13	12	0.932692308	14.85714286	0.992688929	3.336836623
32.08	13	0.932692308	14.85714286	0.992688929	3.468232783
32.91	14	0.932692308	14.85714286	0.992688929	3.493776563
33.40	15	0.932692308	14.85714286	0.992688929	3.5085559

Table 84 Results of linear regression for shear bond strength for group C-CK

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.92006913
R Square	0.846527204
Adjusted R Square	0.834721604
Standard Error	0.471718639
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	1	15.95581307	15.9558131	71.7055657	1.19368E-06
Residual	13	2.892740164	0.22251847		
Total	14	18.84855323			

	Coefficients	Std. Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-17.84368134	2.108624068	1.2026E-06	1.2026E-06	-22.39908668	-13.28827601	-22.39908668	-13.28827601
ln(Shear bond strength)	5.539129435	0.654131526	1.19397E-06	1.1937E-06	4.125964193	6.952294678	4.125964193	6.952294678

Beta (or shape parameter) = 5.539129435

Alpha (or characteristic life) = 25.06286637

NB: df = Degree of freedom, MS = Mean square, SS = Sum of square, F = F test, P-value = Probability of value.

Table 85 Residual output of shear bond strength for group C-CK

<i>Observation</i>	<i>Predicted $\ln(\ln(1/(1-\text{Median Rank})))$</i>	<i>Residuals</i>
1	-1.699765537	-0.964077548
2	-1.563283028	-0.159980122
3	-0.906310469	-0.295712646
4	-0.901106965	0.07944045
5	-0.7649657	0.256370306
6	-0.649458362	0.419092917
7	-0.237722337	0.270647299
8	-0.187199247	0.486232179
9	0.400062779	0.193914437
10	0.51603777	0.47665116
11	0.619762346	0.372926584
12	0.639488611	0.353200318
13	1.367308951	-0.374620022
14	1.508799255	-0.516110325
15	1.590663915	-0.597974986

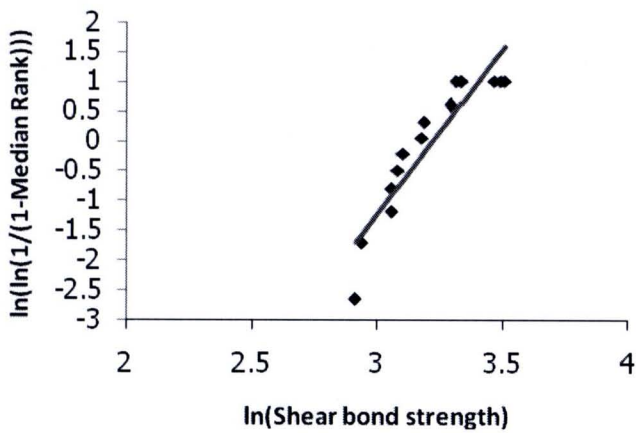
**Figure 90** Line fit plot of group C-CK

Table 86 Weibull reliability calculation of shear bond strength for group C-CK

Beta (or shape parameter) = 5.539129435 Alpha (or characteristic life) = 25.06286637		Shear bond strength	survival probability	Reliability
		5	0.0001	0.9999
		7	0.0009	0.9991
		9	0.0034	0.9966
		11	0.0104	0.9896
		13	0.0260	0.9740
		15	0.0566	0.9434
		17	0.1099	0.8901
		19	0.1940	0.8060
		21	0.3130	0.6870
		23	0.4628	0.5372
		25	0.6270	0.3730
		27	0.7792	0.2208
		29	0.8940	0.1060
		31	0.9611	0.0389
		33	0.9898	0.0102
	Reliability	Shear bond strength		
	0.01	33.0194		
	0.1	29.1355		
	0.5	23.4582		
	0.9	16.6952		
	0.95	14.6606		
	0.99	10.9234		

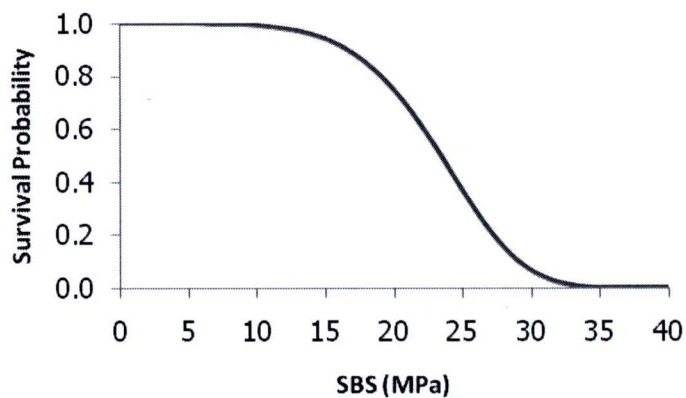
**Figure 91** Survival graph of group C-CK

Table 87 Weibull analysis of shear bond strength for group C-emax

Shear bond strength (MPa)	Rank	Median Ranks	1/(1-Median Rank)	ln(ln(1/(1-Median Rank)))	ln(Shear bond strength)
12.76	1	0.067307692	1.072164948	-2.663843085	2.546315278
13.38	2	0.163461538	1.195402299	-1.72326315	2.593761055
13.39	3	0.259615385	1.350649351	-1.202023115	2.59450816
13.66	4	0.355769231	1.552238806	-0.821666515	2.614471854
16.50	5	0.451923077	1.824561404	-0.508595394	2.803360381
17.17	6	0.548076923	2.212765957	-0.230365445	2.843163675
18.94	7	0.644230769	2.810810811	0.032924962	2.941276088
19.42	8	0.740384615	3.851851852	0.299032932	2.966303463
23.26	9	0.836538462	6.117647059	0.593977217	3.146735147
23.34	10	0.932692308	14.85714286	0.992688929	3.150168627
23.46	11	0.932692308	14.85714286	0.992688929	3.155296843
24.28	12	0.932692308	14.85714286	0.992688929	3.189652966
24.29	13	0.932692308	14.85714286	0.992688929	3.190064743
26.55	14	0.932692308	14.85714286	0.992688929	3.279029748
28.70	15	0.932692308	14.85714286	0.992688929	3.356897123

Table 88 Results of linear regression for shear bond strength for group C-max**SUMMARY OUTPUT**

<i>Regression Statistics</i>	
Multiple R	0.940239865
R Square	0.884051004
Adjusted R Square	0.875131851
Standard Error	0.410016024
Observations	15

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	16.66308241	16.66308241	99.11826284	1.89406E-07
Residual	13	2.185470822	0.16811314		
Total	14	18.84855323			

	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-11.68616981	1.176782479	-9.93061166	1.95052E-07	-14.22845379	-9.143885828	-14.22845379	-9.143885828
ln(Shear bond strength)	3.944577286	0.396208354	9.955815529	1.89406E-07	3.088621178	4.800533395	3.088621178	4.800533395

Beta (or shape parameter) = 3.944577286

Alpha (or characteristic life) = 19.34804077

NB: *df* = Degree of freedom, *MS* = Mean square, *SS* = Sum of square, *F* = *F* test, *P-value* = Probability of value

Table 89 Residual output of shear bond strength for group C-emax

<i>Observation</i>	<i>Predicted $\ln(\ln(1/(1-\text{Median Rank})))$</i>	<i>Residuals</i>
1	-1.642032398	-1.021810688
2	-1.454878864	-0.268384286
3	-1.451931851	0.249908736
4	-1.373183515	0.551517
5	-0.628098123	0.119502729
6	-0.471090953	0.240725509
7	-0.084078958	0.11700392
8	0.014643457	0.284389475
9	0.72637018	-0.132392964
10	0.739913807	0.252775123
11	0.760142453	0.232546477
12	0.895662835	0.097026095
13	0.89728712	0.095401809
14	1.248216457	-0.255527528
15	1.555370336	-0.562681407

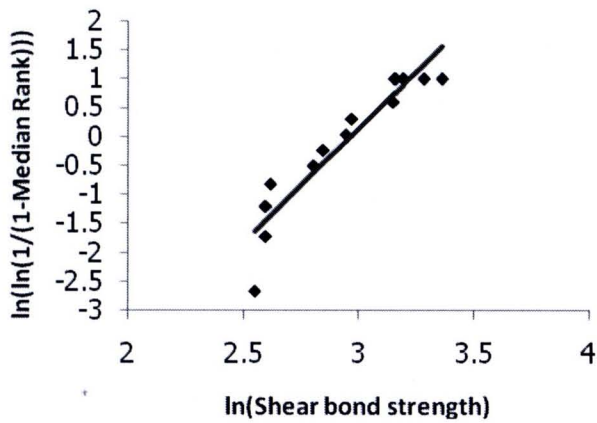
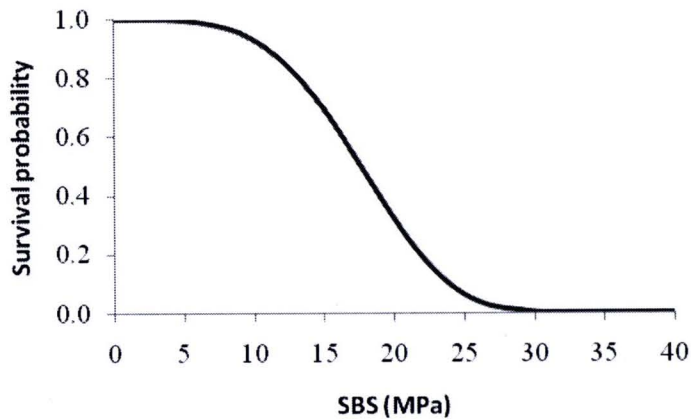
**Figure 92** Line fit plot of group C-emax

Table 90 Weibull reliability calculation of shear bond strength for group C-emax

Beta (or shape parameter) = 3.944577286 Alpha (or characteristic life) = 19.34804077		Shear bond strength	Survival probability	Reliability	
		5	0.004795774	0.995204226	
		7	0.017963265	0.982036735	
		9	0.047673858	0.952326142	
		11	0.102191993	0.897808007	
		13	0.188078385	0.811921615	
		15	0.306767725	0.693232275	
		17	0.451348025	0.548651975	
		19	0.605801496	0.394198504	
		21	0.748803523	0.251196477	
		23	0.861638811	0.138361189	
		25	0.935954942	0.064045058	
		27	0.975837153	0.024162847	
		29	0.992810822	0.007189178	
		31	0.998371762	0.001628238	
		33	0.999729686	0.000270314	
		Reliability	Shear bond strength		
		0.01	28.4956209		
		0.1	23.90359549		
	0.5	17.63129632			
	0.9	10.93637856			
	0.95	9.11215535			
	0.99	6.027880294			

**Figure 93** Survival graph of group C-emax



APPENDIX C
X-ray Diffraction

X-ray Diffraction

Data demonstrated for X-ray Diffraction analysis were demonstrated in table 91.

Table 91 The intensity of Y-TZP in each group and Cercon[®] core

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
20.01	14	11	21	14	9	18	5.76
20.03	16	13	11	12	13	12	10.24
20.05	11	15	11	14	9	14	5.76
20.07	13	12	16	14	6	13	5.76
20.09	17	27	19	12	10	9	2.89
20.11	12	17	7	9	12	10	10.89
20.13	10	16	13	10	19	11	2.76
20.15	13	19	20	12	11	14	6.76
20.17	13	9	15	8	13	12	2.89
20.19	17	15	23	12	14	8	9
20.21	8	15	13	10	11	16	4
20.23	14	21	17	17	9	7	15.21
20.25	26	20	15	10	13	11	9
20.27	13	14	10	8	11	13	9
20.29	27	15	15	14	12	10	4
20.31	15	18	13	11	17	12	1.96
20.33	10	16	25	9	24	11	7.84
20.35	18	21	21	11	16	17	4.84
20.37	24	14	16	16	18	9	4
20.39	12	14	11	10	13	15	16
20.41	12	18	15	9	13	15	12.25
20.43	8	25	17	17	17	13	10.89
20.45	17	13	13	12	12	10	4.84
20.47	13	20	16	8	19	9	7.84
20.49	17	10	12	12	16	13	5.76
20.51	13	9	23	10	13	13	7.84
20.53	22	17	11	14	16	11	5.76
20.55	16	18	16	7	13	20	6.76
20.57	24	14	14	14	13	9	2.89
20.59	9	24	15	8	14	14	4
20.61	20	20	16	14	18	12	10.24
20.63	17	15	13	11	14	14	1.96
20.65	15	21	17	16	23	15	6.76
20.67	15	14	22	9	19	13	10.24
20.69	17	27	23	17	13	12	4
20.71	10	12	15	13	6	13	10.24
20.73	14	15	10	20	10	13	5.76
20.75	12	22	8	16	15	17	6.76
20.77	15	21	15	16	22	13	5.76
20.79	16	19	14	13	16	10	6.76
20.81	18	17	19	12	8	15	7.84
20.83	19	15	15	6	7	11	6.76
20.85	12	24	13	15	20	15	4
20.87	25	15	15	12	14	12	2.89

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
20.89	19	14	10	13	16	6	6.76
20.91	21	12	15	16	12	10	10.24
20.93	18	13	10	11	15	12	5.76
20.95	19	17	12	8	10	16	12.25
20.97	13	13	16	13	18	9	4.84
20.99	25	16	19	10	16	15	6.76
21.01	29	17	17	13	12	18	6.76
21.03	20	12	14	13	11	8	5.76
21.05	24	19	11	7	12	9	4
21.07	14	20	15	12	20	11	5.76
21.09	23	22	14	11	7	10	6.76
21.11	21	15	17	10	18	15	6.76
21.13	8	14	20	13	15	18	10.24
21.15	19	15	17	18	13	17	2.89
21.17	14	22	14	22	12	14	4
21.19	15	20	15	14	16	7	7.84
21.21	17	12	10	11	19	19	10.89
21.23	16	15	11	16	15	11	1.96
21.25	21	13	19	12	22	11	7.84
21.27	12	18	7	13	14	12	6.76
21.29	10	18	16	22	15	6	2.89
21.31	19	11	18	23	12	13	5.76
21.33	16	19	22	14	10	17	6.76
21.35	11	16	17	13	17	9	4.84
21.37	15	17	16	18	13	17	6.76
21.39	22	13	16	18	14	13	4.84
21.41	10	22	9	23	12	14	10.24
21.43	15	21	22	8	15	8	2.89
21.45	20	16	20	15	20	14	6.76
21.47	17	14	20	18	16	11	2.89
21.49	15	22	17	12	12	12	6.76
21.51	16	12	15	8	4	14	4.84
21.53	21	19	25	16	16	11	4
21.55	15	16	17	16	11	14	5.76
21.57	15	16	22	10	13	16	7.84
21.59	12	18	14	9	15	10	4
21.61	17	9	18	13	14	13	1.96
21.63	23	14	15	12	20	3	5.76
21.65	13	17	11	14	17	12	4
21.67	17	11	11	13	9	11	5.76
21.69	13	23	13	15	18	12	2.89
21.71	12	16	14	17	8	9	2.89
21.73	12	17	15	19	7	10	7.84
21.75	15	20	14	14	17	15	1.96
21.77	16	10	16	14	21	16	9
21.79	18	24	19	14	13	15	7.84
21.81	12	11	15	13	8	9	6.76
21.83	17	25	16	12	14	12	9
21.85	10	18	13	23	25	10	6.76
21.87	18	15	11	17	9	12	

Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
21.89	17	12	19	5	23	16	4
21.91	15	17	15	10	15	14	2.89
21.93	19	16	15	8	18	18	4.84
21.95	19	26	11	16	13	15	4
21.97	23	22	21	21	14	14	5.76
21.99	24	26	17	18	13	14	5.76
22.01	15	23	12	7	12	11	4.84
22.03	20	16	15	14	7	15	1.96
22.05	21	19	17	8	12	16	9
22.07	16	20	24	10	14	14	9
22.09	18	17	17	9	11	12	4.84
22.11	23	20	15	11	12	15	9
22.13	14	20	14	16	16	6	5.76
22.15	17	20	10	10	14	13	5.76
22.17	21	21	15	16	21	12	1
22.19	19	15	16	12	18	15	4.84
22.21	12	16	15	9	15	10	2.89
22.23	18	19	9	16	17	7	6.76
22.25	13	13	23	19	15	10	7.84
22.27	17	17	15	20	22	10	5.76
22.29	24	18	14	9	11	21	9
22.31	16	16	19	11	17	13	1
22.33	17	23	15	16	13	10	4
22.35	14	25	15	22	20	11	1.96
22.37	15	15	16	16	10	9	5.76
22.39	17	15	14	8	12	9	4
22.41	17	18	17	11	11	13	5.76
22.43	13	25	12	14	18	15	6.76
22.45	14	15	18	15	10	9	10.24
22.47	13	16	14	8	14	19	7.84
22.49	18	20	17	12	15	13	6.76
22.51	12	17	10	14	14	11	5.76
22.53	22	8	17	17	8	8	10.89
22.55	14	14	13	9	12	14	6.76
22.57	18	16	14	6	12	16	4.84
22.59	17	17	14	13	13	6	2.89
22.61	7	14	21	11	18	9	1.96
22.63	12	18	20	14	13	16	5.76
22.65	13	15	19	14	8	14	10.89
22.67	16	22	26	15	15	10	6.76
22.69	15	19	17	12	11	19	4
22.71	8	18	15	5	19	16	4.84
22.73	23	19	14	12	13	16	4.84
22.75	12	14	18	15	9	10	6.76
22.77	15	16	15	14	13	10	9
22.79	21	20	16	15	11	11	4.84
22.81	7	9	16	12	17	25	6.76
22.83	16	27	13	9	16	20	7.84
22.85	13	18	17	15	25	16	4.84
22.87	16	18	16	13	20	12	5.76

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
22.89	19	13	18	21	12	9	4
22.91	19	13	15	16	9	13	4.84
22.93	17	15	12	13	16	21	1.96
22.95	18	18	17	7	13	12	10.24
22.97	12	21	10	8	15	10	6.76
22.99	18	20	16	16	16	15	5.76
23.01	11	15	15	10	12	11	7.84
23.03	23	20	14	15	19	13	6.76
23.05	15	17	13	6	14	22	4.84
23.07	19	18	9	15	16	11	4
23.09	24	24	14	15	10	19	1.96
23.11	20	13	25	13	12	15	4.84
23.13	11	24	19	13	9	13	4.84
23.15	11	23	25	15	20	12	5.76
23.17	13	28	13	14	18	14	10.24
23.19	11	16	11	9	12	13	4.84
23.21	14	18	21	13	18	15	2.89
23.23	16	14	13	16	12	19	4.84
23.25	15	13	16	15	15	15	4.84
23.27	12	14	20	12	11	11	4
23.29	15	18	19	13	16	13	6.76
23.31	16	17	9	11	18	9	7.84
23.33	18	17	26	8	16	6	1.96
23.35	28	24	22	9	11	16	2.89
23.37	13	19	11	17	21	10	5.76
23.39	15	24	13	14	15	17	5.76
23.41	21	15	19	18	12	16	7.84
23.43	18	18	18	12	13	12	4.84
23.45	14	14	22	8	19	9	4.84
23.47	13	19	12	16	21	12	4
23.49	18	18	13	14	10	13	5.76
23.51	18	20	15	13	16	13	7.84
23.53	15	12	14	15	11	16	4
23.55	26	22	13	14	13	18	9
23.57	18	16	14	17	15	14	7.84
23.59	25	12	15	12	23	18	2.89
23.61	13	11	18	15	14	16	5.76
23.63	17	18	14	8	21	8	6.76
23.65	22	19	15	14	16	10	10.24
23.67	22	13	18	10	13	20	6.76
23.69	23	15	15	10	13	13	7.84
23.71	19	14	16	14	9	11	4.84
23.73	23	16	20	16	17	19	6.76
23.75	20	24	11	16	14	11	5.76
23.77	11	20	12	19	15	13	6.76
23.79	13	16	9	12	19	7	4
23.81	20	21	21	3	7	13	9
23.83	21	22	14	15	14	15	6.76
23.85	18	17	11	14	14	12	10.24
23.87	15	18	17	7	14	17	4.84

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
23.89	17	29	11	12	15	9	4.84
23.91	20	14	18	17	12	12	10.24
23.93	25	21	19	9	10	13	7.84
23.95	21	22	20	11	14	11	4.84
23.97	9	11	16	14	9	16	4
23.99	14	24	20	14	16	14	7.84
24.01	16	15	18	10	17	19	5.76
24.03	26	16	14	17	9	11	6.76
24.05	15	12	15	7	22	15	10.24
24.07	15	16	20	11	14	7	6.76
24.09	14	22	12	12	9	12	4
24.11	18	23	14	13	18	14	4
24.13	13	23	14	16	14	10	4.84
24.15	18	13	23	16	17	20	13.69
24.17	21	24	14	11	19	8	5.76
24.19	20	15	11	14	11	16	5.76
24.21	18	16	21	16	11	15	7.84
24.23	20	18	16	20	14	18	5.76
24.25	11	12	13	9	7	16	4.84
24.27	17	23	14	13	13	7	6.76
24.29	13	24	16	20	11	16	5.76
24.31	14	21	14	10	22	10	4.84
24.33	22	10	15	15	15	17	9
24.35	14	16	14	10	11	9	2.89
24.37	11	27	14	17	15	16	6.76
24.39	20	19	14	21	21	13	5.76
24.41	24	16	19	11	17	14	5.76
24.43	16	24	11	15	15	15	5.76
24.45	16	19	15	12	21	14	4.84
24.47	21	12	10	10	15	12	4
24.49	13	13	18	15	13	12	7.84
24.51	27	18	17	14	25	7	7.84
24.53	12	18	14	14	12	12	6.76
24.55	14	20	15	17	11	11	9
24.57	17	14	20	8	14	22	7.84
24.59	15	14	28	17	13	14	4.84
24.61	22	9	9	9	18	13	4.84
24.63	18	22	11	15	12	8	10.89
24.65	24	12	10	13	22	10	4
24.67	22	26	13	14	10	10	7.84
24.69	19	20	22	12	10	16	4
24.71	26	13	19	9	20	10	10.24
24.73	17	19	16	11	15	13	4.84
24.75	15	11	9	11	14	19	2.89
24.77	14	22	18	15	17	10	10.24
24.79	20	12	15	10	22	10	12.25
24.81	11	15	13	7	14	16	4
24.83	18	15	15	11	17	17	4.84
24.85	16	17	12	18	15	19	5.76
24.87	17	14	20	10	13	20	2.89

Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
24.89	18	16	16	10	13	17	4
24.91	10	17	20	11	9	12	5.76
24.93	13	14	15	10	16	20	9
24.95	17	18	11	11	12	12	5.76
24.97	16	15	10	18	22	15	10.89
24.99	9	20	18	11	11	12	2.89
25.01	26	20	20	14	15	16	4
25.03	20	19	18	16	11	10	4.84
25.05	18	15	20	15	10	17	2.89
25.07	17	20	10	14	10	20	9
25.09	14	16	19	15	23	14	4
25.11	13	20	13	11	11	14	2.89
25.13	17	16	18	15	10	17	4.84
25.15	19	14	17	11	17	16	5.76
25.17	16	16	25	18	20	15	9
25.19	16	17	9	7	25	23	5.76
25.21	18	16	13	23	13	14	7.84
25.23	22	16	21	11	17	13	10.89
25.25	15	19	14	13	14	13	4.84
25.27	13	19	12	13	17	15	7.84
25.29	23	15	21	13	13	14	2.89
25.31	15	16	21	12	18	13	5.76
25.33	15	13	13	14	28	10	7.84
25.35	16	12	13	10	15	15	4
25.37	11	12	15	14	8	7	2.89
25.39	17	20	13	18	15	14	5.76
25.41	14	14	10	11	17	9	1.96
25.43	13	17	16	12	15	15	5.76
25.45	19	15	12	12	19	23	6.76
25.47	27	17	17	15	10	10	5.76
25.49	15	15	16	8	14	16	4
25.51	12	15	11	15	11	14	4
25.53	20	24	13	14	12	15	2.89
25.55	8	20	15	14	19	16	9
25.57	18	13	20	12	17	14	4
25.59	20	16	13	11	13	11	4.84
25.61	15	9	17	20	19	23	5.76
25.63	10	16	22	18	20	14	4
25.65	18	16	17	16	23	12	5.76
25.67	13	12	13	11	15	12	6.76
25.69	11	19	17	26	8	19	5.76
25.71	16	13	17	18	18	14	4
25.73	9	23	9	10	14	8	7.84
25.75	17	17	13	17	15	6	7.84
25.77	20	20	19	11	11	14	2.89
25.79	10	21	14	9	13	17	10.24
25.81	24	14	12	11	21	8	6.76
25.83	15	15	12	5	8	18	6.76
25.85	12	20	19	11	12	18	1.96
25.87	18	19	11	13	14	20	2.89

Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
25.89	19	24	13	9	18	17	10.89
25.91	14	16	17	17	16	10	6.76
25.93	15	13	21	12	14	23	2.89
25.95	22	12	16	19	25	15	9
25.97	16	16	18	16	17	27	6.76
25.99	16	22	22	8	9	15	6.76
26.01	23	15	19	16	8	19	5.76
26.03	14	9	19	14	13	23	9
26.05	13	16	23	11	11	23	12.25
26.07	16	16	20	21	18	19	4.84
26.09	16	12	22	12	21	28	7.84
26.11	12	17	10	9	14	18	4.84
26.13	19	17	22	13	17	18	2.89
26.15	18	19	18	16	8	15	6.76
26.17	15	16	15	16	5	18	7.84
26.19	17	10	22	9	12	19	4
26.21	11	18	14	13	18	12	4
26.23	13	13	17	4	13	13	5.76
26.25	12	11	15	14	9	16	4
26.27	13	18	13	9	19	21	4
26.29	17	26	15	9	18	17	7.84
26.31	14	20	18	14	10	13	4
26.33	17	7	18	15	16	20	5.76
26.35	13	18	17	10	7	12	4.84
26.37	20	17	13	17	13	9	10.89
26.39	11	25	15	13	12	11	5.76
26.41	16	18	18	12	16	19	4
26.43	14	12	10	5	13	16	4.84
26.45	17	19	16	9	10	16	5.76
26.47	15	25	6	17	11	8	7.84
26.49	11	15	14	20	16	11	4.84
26.51	15	18	12	13	15	12	5.76
26.53	14	16	10	15	13	19	9
26.55	15	14	19	16	13	14	1
26.57	21	23	13	10	17	17	4.84
26.59	19	14	11	15	13	15	4.84
26.61	22	13	12	8	19	15	4
26.63	11	14	16	13	14	12	6.76
26.65	13	14	9	19	17	15	1.96
26.67	15	16	21	11	16	16	5.76
26.69	14	26	18	11	15	16	7.84
26.71	16	18	17	16	19	16	5.76
26.73	14	12	17	18	14	22	1
26.75	19	12	18	20	13	12	9
26.77	20	17	13	19	19	14	5.76
26.79	12	20	1	20	18	16	4.84
26.81	11	15	13	22	13	13	4.84
26.83	20	17	10	8	10	9	5.76
26.85	14	17	16	17	10	12	1.96
26.87	22	12	17	9	16	7	9

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
26.89	14	15	14	16	8	16	7.84
26.91	14	14	10	14	16	20	4
26.93	18	9	12	14	16	15	1
26.95	13	15	11	19	10	14	6.76
26.97	20	10	13	14	7	18	4.84
26.99	9	19	11	16	18	12	7.84
27.01	13	14	13	13	15	22	5.76
27.03	17	10	13	13	11	17	5.76
27.05	16	16	21	17	10	12	6.76
27.07	14	13	21	15	18	21	6.76
27.09	14	21	13	13	17	12	1
27.11	13	20	21	13	18	16	12.25
27.13	16	15	12	17	9	11	7.84
27.15	12	18	25	10	13	26	5.76
27.17	17	22	13	12	16	19	4.84
27.19	18	15	19	12	11	30	10.24
27.21	25	22	19	17	9	27	10.89
27.23	14	16	17	15	14	27	5.76
27.25	13	13	22	13	8	25	7.84
27.27	19	11	14	10	14	24	5.76
27.29	19	19	26	14	14	22	5.76
27.31	20	21	17	10	11	20	10.89
27.33	11	18	18	18	18	26	4.84
27.35	21	16	10	16	12	14	6.76
27.37	18	16	17	14	14	13	2.89
27.39	14	15	22	16	15	15	9
27.41	20	19	9	15	13	12	4.84
27.43	15	21	11	15	19	14	4
27.45	12	12	21	10	19	3	9
27.47	13	18	12	21	9	21	6.76
27.49	15	12	16	16	9	13	5.76
27.51	15	10	24	10	13	13	10.24
27.53	14	16	15	15	15	15	7.84
27.55	14	16	15	17	19	17	5.76
27.57	8	19	10	9	8	15	2.89
27.59	12	12	13	14	10	16	4
27.61	14	13	16	10	27	20	4
27.63	14	13	13	11	8	9	0
27.65	10	21	12	11	13	16	6.76
27.67	22	17	19	15	9	14	9
27.69	1	25	16	8	16	21	4
27.71	17	19	12	13	18	13	2.89
27.73	17	8	10	14	14	17	9
27.75	13	9	13	7	16	9	10.89
27.77	15	14	14	11	16	14	2.89
27.79	15	20	20	11	19	9	5.76
27.81	17	18	15	14	4	12	5.76
27.83	13	14	18	15	14	13	1
27.85	12	24	20	13	18	12	10.24
27.87	13	11	12	7	13	12	6.76

Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
27.89	15	15	21	14	22	14	9
27.91	20	12	12	11	9	5	5.76
27.93	13	17	16	14	20	11	9
27.95	14	13	12	16	15	13	10.24
27.97	14	10	11	11	13	10	10.24
27.99	17	17	16	12	12	17	12.96
28.01	20	9	26	17	16	16	4.84
28.03	14	19	19	14	12	8	6.76
28.05	12	10	12	13	10	13	16
28.07	17	16	15	14	15	17	4
28.09	14	18	20	9	16	13	10.24
28.11	18	17	12	19	17	23	9
28.13	21	11	9	13	14	14	19.36
28.15	10	22	16	10	14	14	4.84
28.17	11	18	12	14	23	13	10.89
28.19	16	11	8	17	11	13	10.24
28.21	12	19	15	13	16	13	12.25
28.23	15	25	15	11	14	11	16.81
28.25	20	13	15	13	15	12	10.24
28.27	16	11	23	15	15	17	16
28.29	12	19	22	17	13	10	16.81
28.31	15	14	8	13	18	8	16.81
28.33	11	20	10	13	13	26	13.69
28.35	16	15	23	15	13	16	16.81
28.37	12	11	11	9	13	14	10.89
28.39	13	19	14	15	15	17	13.69
28.41	14	13	13	23	13	23	10.24
28.43	12	19	17	19	9	14	12.25
28.45	12	20	18	18	10	12	4.84
28.47	15	17	21	11	19	13	10.24
28.49	20	18	21	14	17	10	10.24
28.51	13	19	13	11	17	18	10.24
28.53	16	14	15	8	11	20	7.84
28.55	20	15	13	11	11	13	6.76
28.57	10	17	13	15	10	16	10.89
28.59	12	24	12	14	13	16	10.89
28.61	12	14	13	11	12	12	6.76
28.63	15	13	18	15	21	14	10.24
28.65	17	25	17	9	15	11	7.84
28.67	25	18	10	19	8	28	16.81
28.69	24	20	17	12	19	12	9
28.71	27	16	24	14	17	10	10.24
28.73	22	13	13	13	18	9	10.24
28.75	27	16	22	12	1	5	6.76
28.77	17	20	16	14	13	15	10.24
28.79	19	31	7	10	17	11	13.69
28.81	19	18	8	9	13	11	19.36
28.83	13	9	17	14	16	16	7.84
28.85	7	14	13	17	20	13	4.84
28.87	13	11	16	16	10	18	15.21

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
28.89	10	19	13	17	8	17	9
28.91	18	15	14	14	15	22	12.25
28.93	13	13	19	19	15	12	12.96
28.95	9	12	21	14	12	24	5.76
28.97	25	12	11	14	18	14	12.25
28.99	19	20	9	15	24	14	7.84
29.01	20	10	17	13	13	16	5.76
29.03	7	13	15	8	13	19	9
29.05	14	13	16	9	15	12	12.25
29.07	15	16	11	13	17	16	16.81
29.09	14	15	14	10	19	19	4
29.11	19	12	13	13	13	13	12.25
29.13	16	6	16	10	9	17	16
29.15	15	16	8	12	19	12	10.24
29.17	14	7	12	16	16	16	10.24
29.19	16	13	10	16	13	10	6.76
29.21	10	21	12	16	11	8	5.76
29.23	16	19	16	18	17	16	9
29.25	14	14	11	19	13	16	10.89
29.27	15	16	16	15	17	18	12.25
29.29	12	18	13	19	12	13	10.89
29.31	21	20	20	14	9	14	15.21
29.33	19	16	17	16	17	20	12.96
29.35	8	20	15	9	11	16	21.16
29.37	11	17	12	11	17	21	16.81
29.39	11	14	13	21	15	11	15.21
29.41	15	16	17	16	10	13	12.96
29.43	16	12	13	21	11	15	16
29.45	17	16	15	15	15	16	23.04
29.47	20	13	23	17	16	23	19.36
29.49	15	16	20	17	22	18	16
29.51	24	16	16	14	20	20	16
29.53	16	17	14	6	16	19	16
29.55	20	12	18	11	21	19	17.64
29.57	9	13	19	17	27	24	26.01
29.59	19	15	13	17	16	22	17.64
29.61	15	13	13	16	16	24	17.64
29.63	11	20	18	23	21	21	23.04
29.65	15	10	20	20	16	27	27.04
29.67	17	26	21	18	19	28	25
29.69	22	22	30	16	18	32	31.36
29.71	22	16	27	19	15	29	31.36
29.73	15	18	25	27	22	37	30.25
29.75	23	21	24	23	20	38	38.44
29.77	19	22	26	25	19	36	47.61
29.79	15	23	34	17	26	31	49
29.81	29	24	26	14	32	50	57.76
29.83	17	31	37	29	36	48	96.04
29.85	27	26	50	26	27	49	90.25
29.87	29	32	49	40	32	53	100

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
29.89	21	30	44	34	34	48	136.89
29.91	37	32	53	29	34	56	144
29.93	26	32	66	32	44	72	184.96
29.95	38	48	61	44	52	66	219.04
29.97	50	45	74	40	46	53	265.69
29.99	59	56	79	42	66	77	278.89
30.01	56	50	79	37	53	79	349.69
30.03	62	59	106	66	55	71	364.81
30.05	83	77	146	76	61	88	519.84
30.07	83	94	151	69	77	94	625
30.09	106	108	202	81	102	110	795.24
30.11	135	130	199	92	88	114	888.04
30.13	156	106	231	117	104	121	1108.89
30.15	169	137	253	106	130	161	1451.61
30.17	213	161	292	169	135	190	1705.69
30.19	256	213	350	161	174	193	1971.36
30.21	272	272	408	190	213	213	2304
30.23	376	320	488	237	289	259	2550.25
30.25	416	376	420	250	310	296	2683.24
30.27	462	396	424	339	320	320	2430.49
30.29	480	404	400	388	400	310	2410.81
30.31	462	424	276	441	449	292	2097.64
30.33	404	353	250	462	412	276	1738.89
30.35	353	276	216	458	400	225	1310.44
30.37	289	243	137	420	310	174	954.81
30.39	188	185	112	317	286	149	702.25
30.41	151	151	85	286	196	100	488.41
30.43	106	108	69	213	174	98	349.69
30.45	77	76	56	154	128	66	289
30.47	53	67	52	121	94	56	216.09
30.49	50	50	44	66	66	50	151.29
30.51	40	41	36	69	49	52	144
30.53	42	38	28	53	49	56	123.21
30.55	37	35	36	48	46	42	108.16
30.57	26	28	38	42	44	42	82.81
30.59	25	29	28	38	26	41	90.25
30.61	28	38	37	29	24	21	56.25
30.63	29	15	22	27	23	23	43.56
30.65	23	30	18	26	21	32	50.41
30.67	23	15	17	21	15	26	56.25
30.69	19	23	9	32	13	18	49
30.71	21	23	16	18	20	28	34.81
30.73	15	16	15	22	20	21	36
30.75	9	19	17	27	20	20	30.25
30.77	13	17	16	24	21	29	19.36
30.79	13	23	14	11	13	18	23.04
30.81	16	24	18	14	14	17	29.16
30.83	14	14	13	15	19	15	16
30.85	17	10	17	20	12	25	16
30.87	16	16	18	19	12	10	17.64

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
30.89	13	7	12	14	19	20	10.89
30.91	13	16	16	13	8	10	13.69
30.93	15	12	19	14	14	15	13.69
30.95	13	17	15	16	22	16	16.81
30.97	15	12	12	20	14	19	12.25
30.99	18	9	16	11	20	20	15.21
31.01	14	9	12	9	8	13	17.64
31.03	18	11	13	15	15	10	12.25
31.05	10	8	11	10	13	13	6.76
31.07	9	10	10	5	14	15	6.76
31.09	11	16	8	10	11	21	12.25
31.11	12	13	12	15	11	12	10.24
31.13	9	10	15	8	15	12	17.64
31.15	11	12	9	13	16	10	9
31.17	11	11	15	12	12	15	16.81
31.19	11	9	14	12	11	14	9
31.21	10	15	12	8	12	18	10.89
31.23	10	16	15	20	8	16	6.76
31.25	12	12	7	11	12	12	10.24
31.27	10	12	12	12	8	14	10.89
31.29	10	13	11	13	13	14	12.25
31.31	13	10	11	8	5	12	4.84
31.33	10	13	6	11	17	15	5.76
31.35	17	7	12	16	9	18	9
31.37	14	17	10	8	12	19	9
31.39	16	11	14	7	12	18	12.96
31.41	12	9	6	12	6	15	10.24
31.43	13	14	12	7	14	23	6.76
31.45	13	8	11	8	8	14	10.89
31.47	6	10	11	13	12	23	7.84
31.49	13	11	16	9	8	15	4
31.51	12	9	14	9	17	12	10.24
31.53	11	9	13	8	8	19	5.76
31.55	9	14	13	5	9	11	9
31.57	12	11	17	15	9	21	10.24
31.59	14	9	15	11	15	18	9
31.61	9	17	16	9	17	14	9
31.63	10	14	12	8	15	22	10.24
31.65	10	14	14	4	9	20	4.84
31.67	7	14	15	6	16	19	12.25
31.69	12	14	11	8	13	16	4.84
31.71	10	11	8	7	10	14	6.76
31.73	9	12	19	8	17	13	1.96
31.75	14	13	10	8	11	11	4
31.77	8	15	12	12	16	17	7.84
31.79	9	15	13	6	10	14	9
31.81	9	7	14	6	9	15	7.84
31.83	6	10	9	8	8	16	5.76
31.85	13	6	16	14	11	21	4.84
31.87	12	12	14	19	13	11	10.24

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
31.89	12	19	10	9	12	17	6.76
31.91	11	8	7	11	10	15	10.24
31.93	11	7	12	14	7	17	12.96
31.95	9	14	7	12	7	11	9
31.97	11	16	11	10	17	8	4
31.99	13	15	16	13	13	14	6.76
32.01	14	10	17	9	9	13	12.96
32.03	10	14	9	19	15	8	10.24
32.05	19	7	11	9	10	11	9
32.07	13	12	12	14	10	6	5.76
32.09	11	11	13	7	7	9	4.84
32.11	7	13	12	10	13	17	6.76
32.13	14	13	14	10	10	14	10.24
32.15	10	14	10	9	10	12	6.76
32.17	11	9	13	7	14	14	4
32.19	13	9	12	5	18	18	6.76
32.21	10	15	15	14	11	6	9
32.23	15	9	11	13	9	9	7.84
32.25	11	10	9	7	11	15	4
32.27	5	11	12	8	11	12	2.89
32.29	9	12	12	12	17	10	4
32.31	10	11	14	5	6	11	4.84
32.33	9	20	14	10	9	12	6.76
32.35	8	8	16	9	14	7	4.84
32.37	6	10	11	12	10	12	4
32.39	8	5	8	7	16	6	5.76
32.41	10	10	13	9	9	8	6.76
32.43	11	10	8	13	6	8	4
32.45	15	10	11	8	12	8	4
32.47	5	6	8	12	14	8	1.96
32.49	9	14	8	10	6	11	4
32.51	10	11	6	5	6	11	2.89
32.53	4	9	10	12	8	16	5.76
32.55	10	12	10	14	6	13	1.96
32.57	9	13	13	8	10	10	9
32.59	8	11	6	8	9	15	1.96
32.61	13	12	12	7	12	13	4
32.63	12	11	9	3	10	16	5.76
32.65	12	9	14	12	8	6	5.76
32.67	8	14	14	10	11	7	6.76
32.69	17	17	7	11	7	11	5.76
32.71	8	6	8	14	7	10	6.76
32.73	8	9	5	12	13	10	5.76
32.75	14	4	4	13	10	13	2.89
32.77	20	8	10	11	11	11	2.89
32.79	12	8	14	15	12	6	2.89
32.81	10	16	7	9	3	16	5.76
32.83	7	7	6	17	19	13	4.84
32.85	11	15	10	6	14	5	1
32.87	13	12	11	6	9	10	4

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
32.89	12	15	9	5	8	10	4
32.91	11	10	9	13	7	9	5.76
32.93	7	8	9	12	15	11	12.25
32.95	9	12	12	10	13	11	4.84
32.97	9	9	11	8	4	11	6.76
32.99	8	5	4	8	7	12	6.76
33.01	12	9	10	8	12	9	1.96
33.03	5	12	11	12	10	9	9
33.05	9	10	2	10	13	9	7.84
33.07	8	10	5	6	13	10	10.24
33.09	9	7	7	3	14	9	6.76
33.11	9	6	8	12	9	6	5.76
33.13	6	2	7	14	13	15	4.84
33.15	12	10	10	5	12	6	1.96
33.17	9	11	21	7	15	9	2.89
33.19	5	12	10	12	13	7	2.89
33.21	11	6	10	8	7	4	4.84
33.23	11	9	9	10	13	23	6.76
33.25	8	11	12	6	8	7	4.84
33.27	8	8	13	7	7	15	4
33.29	11	13	11	7	10	14	1.96
33.31	10	7	10	6	9	10	1
33.33	9	12	11	11	9	14	5.76
33.35	11	4	4	8	10	7	1.96
33.37	10	13	7	12	6	8	4.84
33.39	16	8	8	16	14	17	4.84
33.41	15	10	10	9	7	10	5.76
33.43	10	11	11	12	9	6	5.76
33.45	13	10	11	8	13	9	10.89
33.47	8	13	6	8	11	11	4.84
33.49	7	8	6	5	12	9	2.89
33.51	9	10	13	9	7	9	7.84
33.53	13	5	14	7	11	6	4
33.55	10	12	8	13	6	8	5.76
33.57	12	6	14	9	12	10	2.89
33.59	11	14	6	10	9	7	7.84
33.61	6	9	4	7	10	8	4.84
33.63	10	8	8	6	8	8	4.84
33.65	8	14	16	8	8	9	5.76
33.67	11	12	8	11	13	15	4
33.69	10	10	9	7	9	10	4
33.71	10	7	13	7	9	11	7.84
33.73	4	7	8	13	11	12	7.84
33.75	10	7	8	6	2	10	4
33.77	8	10	12	8	8	13	4.84
33.79	9	5	5	5	7	12	10.24
33.81	5	8	6	11	8	8	1.96
33.83	9	11	8	8	15	8	4.84
33.85	9	7	11	6	11	7	2.89
33.87	6	8	11	10	16	4	4.84

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
33.89	11	15	11	9	13	9	6.76
33.91	13	6	4	10	6	17	7.84
33.93	6	9	7	10	12	9	4.84
33.95	5	10	6	11	9	15	9
33.97	11	9	13	8	14	9	4
33.99	14	8	7	7	15	9	10.24
34.01	10	17	7	10	13	11	7.84
34.03	13	6	10	9	16	12	5.76
34.05	12	5	9	14	8	8	7.84
34.07	10	6	12	13	10	9	16.81
34.09	7	13	10	7	12	14	6.76
34.11	12	9	13	11	9	2	10.89
34.13	10	10	9	16	15	5	10.24
34.15	11	14	11	15	14	13	2.89
34.17	10	12	13	6	8	17	9
34.19	9	9	10	9	10	12	5.76
34.21	11	9	12	10	8	13	13.69
34.23	15	13	18	6	10	15	10.89
34.25	12	7	9	9	13	12	5.76
34.27	9	9	10	6	10	8	10.24
34.29	9	7	7	8	17	10	12.96
34.31	13	9	5	11	10	9	16
34.33	9	16	12	10	9	15	15.21
34.35	12	12	15	7	11	9	15.21
34.37	8	9	14	6	15	11	10.89
34.39	18	11	12	7	18	6	17.64
34.41	13	13	12	9	8	13	25
34.43	9	10	11	11	12	16	17.64
34.45	13	9	15	8	14	12	28.09
34.47	14	12	7	7	16	10	25
34.49	10	14	11	14	18	13	39.69
34.51	13	10	12	4	12	12	42.25
34.53	13	7	13	10	11	23	59.29
34.55	16	16	27	14	11	15	59.29
34.57	10	16	20	16	9	23	67.24
34.59	27	13	22	13	19	25	65.61
34.61	25	19	40	14	25	29	110.25
34.63	20	18	28	23	18	17	134.56
34.65	28	21	34	19	20	35	158.76
34.67	37	32	41	25	22	40	169
34.69	32	36	59	27	32	28	196
34.71	44	34	66	34	34	49	184.96
34.73	42	48	41	38	46	44	169
34.75	58	45	62	48	58	50	171.61
34.77	55	46	40	44	62	35	158.76
34.79	53	48	40	66	56	50	153.76
34.81	44	38	41	48	31	42	125.44
34.83	37	35	30	59	40	32	106.09
34.85	41	29	36	32	34	32	96.04
34.87	28	21	26	44	41	26	94.09

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
34.89	26	27	24	32	35	26	98.01
34.91	34	28	19	28	28	26	70.56
34.93	20	22	24	26	27	26	77.44
34.95	17	23	23	19	28	20	65.61
34.97	16	13	22	16	23	26	82.81
34.99	25	14	17	15	30	23	77.44
35.01	15	21	28	13	19	30	92.16
35.03	23	12	26	21	22	12	84.64
35.05	16	24	11	22	21	22	94.09
35.07	21	10	22	25	23	23	98.01
35.09	13	17	22	20	14	24	136.89
35.11	16	18	23	23	25	18	153.76
35.13	35	16	35	19	30	20	174.24
35.15	32	23	38	23	27	20	216.09
35.17	29	29	38	27	22	31	252.81
35.19	53	30	48	34	29	38	309.76
35.21	56	31	50	34	32	35	313.29
35.23	59	44	72	50	46	44	349.69
35.25	62	58	58	38	46	50	313.29
35.27	66	67	53	53	59	50	285.61
35.29	52	53	45	48	56	44	275.56
35.31	72	50	34	44	56	42	210.25
35.33	53	49	29	62	44	32	169
35.35	45	35	21	72	49	23	136.89
35.37	38	32	23	56	46	26	104.04
35.39	32	24	25	44	36	21	70.56
35.41	21	24	19	44	38	17	62.41
35.43	20	12	16	38	18	16	38.44
35.45	19	23	8	32	13	16	29.16
35.47	11	13	12	27	18	16	28.09
35.49	17	9	9	16	13	18	20.25
35.51	19	13	10	16	11	12	21.16
35.53	7	7	13	13	9	9	23.04
35.55	7	12	8	14	13	10	16.81
35.57	11	10	12	8	9	4	19.36
35.59	14	3	7	10	10	12	19.36
35.61	12	4	10	10	8	7	12.25
35.63	6	13	10	10	6	6	16
35.65	13	8	7	12	9	5	16
35.67	7	14	7	6	9	7	9
35.69	6	12	6	5	10	8	7.84
35.71	11	7	9	9	10	5	4
35.73	15	7	14	10	9	2	2.89
35.75	11	13	8	12	9	6	4.84
35.77	11	9	7	9	8	5	2.89
35.79	4	17	9	7	5	10	10.89
35.81	6	6	13	9	8	11	6.76
35.83	8	10	4	6	7	13	4
35.85	9	7	9	7	5	7	4
35.87	4	9	6	2	10	6	7.84

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
35.89	8	9	4	11	4	7	4.84
35.91	5	4	10	8	12	7	7.84
35.93	2	11	6	9	8	5	4
35.95	5	9	5	9	11	7	10.89
35.97	7	6	9	5	10	8	2.89
35.99	5	10	9	8	6	9	4
36.01	8	11	16	8	8	6	6.76
36.03	11	15	6	10	10	7	2.89
36.05	7	7	15	10	15	11	1
36.07	5	8	7	6	9	10	1.96
36.09	9	4	10	16	13	9	4
36.11	7	5	9	9	5	9	5.76
36.13	4	8	12	4	9	11	6.76
36.15	11	7	10	10	8	7	2.89
36.17	9	6	10	10	6	15	2.89
36.19	12	10	5	9	3	9	4.84
36.21	10	4	4	7	9	5	6.76
36.23	16	7	13	4	5	4	4.84
36.25	9	6	14	6	7	12	1.96
36.27	15	7	5	5	7	11	5.76
36.29	6	12	5	13	8	7	1.96
36.31	16	7	5	6	5	11	4
36.33	6	7	5	6	6	11	4
36.35	4	6	5	6	2	7	5.76
36.37	4	5	9	4	8	5	4
36.39	5	10	3	11	10	6	5.76
36.41	10	10	8	5	11	10	1.96
36.43	7	8	5	5	9	10	4
36.45	6	6	3	9	5	3	4
36.47	14	13	3	0	9	5	6.76
36.49	6	5	13	11	14	3	9
36.51	6	9	9	5	8	7	1.96
36.53	6	3	7	5	6	4	2.89
36.55	9	8	7	7	7	13	5.76
36.57	7	8	6	12	6	8	4
36.59	4	6	13	9	9	9	4.84
36.61	9	6	13	10	6	8	4.84
36.63	10	6	9	8	3	4	1
36.65	10	8	5	6	11	6	6.76
36.67	7	10	5	7	6	9	5.76
36.69	10	4	8	7	11	8	4
36.71	6	5	6	8	11	8	5.76
36.73	11	11	6	7	7	6	4
36.75	8	12	9	8	6	10	4.84
36.77	7	6	5	12	12	10	4
36.79	5	7	7	8	8	8	6.76
36.81	13	7	8	2	5	12	4.84
36.83	8	7	8	9	5	8	4
36.85	12	13	6	4	8	2	1
36.87	4	8	8	8	2	6	4

Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
36.89	2	6	6	8	13	10	2.89
36.91	6	5	6	7	6	6	7.84
36.93	3	8	7	6	5	10	6.76
36.95	11	3	6	6	5	10	2.89
36.97	6	8	7	8	6	5	4.84
36.99	4	13	10	6	6	8	2.89
37.01	6	7	10	7	9	5	9
37.03	4	4	4	7	13	7	4.84
37.05	7	8	8	7	7	4	5.76
37.07	8	6	13	8	5	7	6.76
37.09	7	10	9	8	8	5	5.76
37.11	11	11	7	12	4	11	5.76
37.13	8	9	8	7	9	4	4
37.15	5	6	11	7	11	11	2.89
37.17	6	7	6	5	9	6	1.96
37.19	9	10	7	7	5	7	6.76
37.21	5	9	7	4	7	3	4
37.23	5	9	7	5	7	7	6.76
37.25	6	7	6	2	4	7	2.89
37.27	14	5	8	5	7	7	4.84
37.29	7	4	7	9	7	3	4.84
37.31	3	7	7	6	8	9	9
37.33	6	3	3	3	3	4	6.76
37.35	6	8	8	6	6	8	4
37.37	8	6	9	4	7	12	1.96
37.39	4	9	5	6	17	9	1.96
37.41	6	7	5	4	6	4	5.76
37.43	7	6	8	8	12	3	5.76
37.45	9	7	7	8	9	2	4
37.47	3	8	5	7	5	6	7.84
37.49	7	13	6	5	7	3	4.84
37.51	9	4	7	9	3	6	4
37.53	7	6	10	6	9	11	4
37.55	2	6	9	5	5	7	4.84
37.57	11	7	10	5	5	7	4
37.59	4	7	8	8	7	15	1
37.61	9	9	5	9	9	13	4
37.63	8	10	5	3	7	10	1.96
37.65	6	2	7	3	6	6	4.84
37.67	8	6	7	8	11	6	4
37.69	13	4	5	9	9	10	2.89
37.71	6	9	10	5	6	10	4
37.73	2	7	6	2	8	8	2.89
37.75	4	5	4	7	9	9	4.84
37.77	10	9	6	9	9	10	0
37.79	6	9	6	5	9	8	6.76
37.81	11	10	5	4	9	2	2.89
37.83	7	2	11	7	10	7	2.89
37.85	5	6	5	4	15	10	4
37.87	11	10	11	9	5	18	2.89



Table 91 The intensity of Y-TZP in each group and Cercon® core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon®
37.89	13	8	9	4	9	7	1.96
37.91	5	7	6	4	10	12	6.76
37.93	4	5	7	5	9	6	1
37.95	7	12	7	6	11	11	4
37.97	11	9	6	11	9	7	0
37.99	6	11	7	6	6	10	4
38.01	10	5	4	8	10	10	2.89
38.03	3	9	12	9	12	12	2.89
38.05	6	9	14	9	10	13	4
38.07	11	12	7	12	9	16	1.96
38.09	11	18	7	15	12	11	5.76
38.11	7	13	10	13	16	16	7.84
38.13	13	19	11	8	8	20	4
38.15	15	13	9	6	17	9	4.84
38.17	11	23	15	11	19	14	6.76
38.19	15	27	12	17	13	14	2.89
38.21	18	21	14	19	29	18	4.84
38.23	21	21	30	21	32	18	1
38.25	31	25	15	38	50	13	6.76
38.27	53	21	22	58	53	29	5.76
38.29	53	22	21	72	53	18	7.84
38.31	66	26	21	69	71	18	4
39.33	58	19	29	67	71	28	5.76
38.35	72	23	28	52	94	22	4.84
38.37	64	21	31	85	88	22	4
38.39	72	24	35	96	85	19	4
38.41	64	17	25	72	72	24	4.84
38.43	66	11	23	62	49	25	1
38.45	38	15	23	48	48	27	2.89
38.47	50	19	17	32	38	17	4
38.49	44	17	14	40	44	20	4.84
38.51	31	14	18	32	25	13	4
38.53	26	17	16	25	15	14	4.84
38.55	19	7	23	18	12	17	4
38.57	10	11	15	21	12	20	4.84
38.59	12	16	8	10	15	11	7.84
38.61	10	9	12	7	6	7	4
38.63	13	10	8	10	16	11	4.84
38.65	6	11	8	9	9	4	2.89
38.67	12	6	8	4	13	6	1.96
38.69	11	8	7	6	13	5	2.89
38.71	8	6	2	8	18	8	4
38.73	2	3	11	7	8	4	4.84
38.75	8	2	10	5	10	9	4
38.77	14	11	5	5	5	10	4
38.79	10	6	6	7	11	8	4.84
38.81	2	6	10	3	7	14	4.84
38.83	10	10	8	3	11	9	4.84
38.85	4	8	5	6	10	5	10.24
38.87	10	7	9	6	5	7	9

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
38.89	5	4	8	7	9	6	5.76
38.91	3	9	4	8	8	4	4.84
38.93	6	12	7	7	7	5	4.84
38.95	9	8	6	7	6	6	6.76
38.97	3	7	6	3	5	7	1.96
38.99	9	6	6	4	9	7	4
39.01	7	6	3	6	4	5	1
39.03	6	7	8	4	7	4	4
39.05	7	2	4	2	7	3	5.76
39.07	10	5	5	5	9	3	1.96
39.09	9	9	10	8	7	7	4
39.11	4	3	11	5	6	4	4
39.13	5	5	7	12	4	13	5.76
39.15	4	4	3	11	3	1	5.76
39.17	4	13	6	4	6	6	4.84
39.19	11	10	6	8	4	8	2.89
39.21	9	8	9	4	7	3	2.89
39.23	8	15	6	6	9	2	2.89
39.25	4	6	10	10	4	5	0
39.27	10	10	4	8	10	8	4
39.29	8	7	5	8	5	5	2.89
39.31	6	7	7	7	5	3	4.84
39.33	7	6	5	7	6	4	6.76
39.35	5	7	6	3	3	8	1.96
39.37	9	11	6	8	6	4	4.84
39.39	6	6	7	9	2	4	4.84
39.41	7	7	7	4	10	5	6.76
39.43	13	10	5	7	6	4	9
39.45	11	2	6	10	10	12	7.84
39.47	6	14	5	13	11	18	4
39.49	6	6	5	3	9	11	7.84
39.51	5	5	12	5	9	9	4
39.53	1	7	7	6	6	5	5.76
39.55	5	1	4	5	6	6	2.89
39.57	6	9	1	6	5	5	5.76
39.59	3	8	7	6	5	7	10.89
39.61	9	6	8	3	7	4	2.89
39.63	5	4	7	2	9	10	4.84
39.65	10	4	8	5	5	2	6.76
39.67	6	3	6	6	10	14	4
39.69	8	7	10	6	2	10	4
39.71	8	5	7	5	5	5	4.84
39.73	11	9	5	4	6	4	4
39.75	6	3	5	10	6	8	5.76
39.77	6	4	6	12	6	3	2.89
39.79	6	6	9	4	4	7	4
39.81	3	7	6	5	6	6	4.84
39.83	2	8	6	12	9	2	2.89
39.85	8	2	11	4	5	5	4.84
39.87	4	8	7	6	14	8	4

Table 91 The intensity of Y-TZP in each group and Cercon[®] core (Cont.)

2Theta (degree)	Intensity						
	C-Dur	C-VM7	C-VM9	C-CK	C-emax	C-dSIGN	Cercon [®]
39.89	2	7	10	6	6	7	5.76
39.91	6	9	3	7	8	9	4
39.93	6	7	7	4	7	8	2.89
39.95	12	7	2	7	5	4	5.76
39.97	6	5	9	6	5	5	4.84
39.99	8	7	6	5	9	6	2.89

APPENDIX D

Crack length values of Vickers indentation

Crack length values (c) of Vickers indentation

Data of crack length values (c) of core-veneered (bilayer) specimens

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups

n	Indentation sites	Cercon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
1	1	36.21	41.39	41.78	36.44	40.00	50.10	94.10	65.00	89.00	76.00
	2	40.00	45.02	39.93	38.40	42.70	48.70	88.70	81.10	81.80	73.90
	3	37.70	38.00	39.45	39.40	41.11	48.60	76.90	63.90	87.70	76.70
	4	35.00	40.20	38.38	42.80	40.02	47.15	76.50	83.20	90.00	55.90
	5	39.20	44.90	37.83	45.40	38.00	57.55	83.40	75.70	78.00	77.60
	6	48.56	43.00	38.00	38.00	39.90	50.20	108.30	71.50	109.00	77.70
	7	39.45	45.01	37.30	37.00	39.10	48.80	123.20	71.60	113.40	76.10
	8	42.33	44.03	39.90	44.30	38.90	48.80	109.40	82.00	99.60	81.60
	9	31.91	40.10	40.02	41.10	43.30	51.70	86.20	74.90	92.20	82.30
	10	34.90	47.15	43.03	43.40	45.00	54.95	113.60	73.50	94.30	86.80
	11	37.20	38.77	38.00	42.50	44.45	81.50	99.00	73.20	98.00	80.10
	12	36.11	41.60	35.00	41.50	39.94	52.60	81.30	84.40	100.70	87.30
	13	41.80	41.20	47.00	41.00	37.30	50.65	80.20	91.40	118.10	80.50
	14	39.45	43.25	36.00	42.00	37.86	52.30	96.10	77.90	85.00	255.80
	15	44.70	43.20	38.00	37.80	40.40	71.30	87.20	77.30	84.90	60.00
2	1	35.00	43.20	42.00	42.40	41.00	59.40	89.90	78.60	80.00	73.10
	2	39.40	40.10	39.20	42.70	41.00	53.50	74.90	74.00	87.40	80.00
	3	41.20	38.20	39.40	41.20	43.00	45.30	67.40	76.30	84.90	76.70
	4	43.40	38.94	39.90	42.50	42.00	59.60	83.50	78.30	85.40	65.00
	5	39.90	37.40	39.00	40.00	40.01	61.10	94.30	70.50	75.00	73.10
	6	38.20	42.80	42.00	40.00	41.20	70.05	70.90	70.70	97.80	78.60
	7	47.30	43.20	38.00	44.20	42.00	76.00	96.40	77.80	82.50	81.40
	8	45.10	40.20	44.00	44.30	41.70	62.00	79.10	80.30	85.20	81.10
	9	44.30	42.80	43.10	39.40	43.00	63.15	91.50	73.10	94.40	79.00
	10	36.00	39.90	41.20	39.02	44.00	67.55	106.10	72.90	83.80	72.20
	11	40.30	39.50	44.30	44.50	41.20	70.05	83.60	79.30	87.90	85.40
	12	38.20	38.90	44.40	43.20	41.20	61.50	78.10	81.60	100.00	83.10
	13	38.70	42.30	41.00	42.20	43.30	57.25	83.20	78.40	80.00	85.40
	14	47.00	44.20	44.50	40.10	42.20	82.50	100.90	71.10	93.00	70.50
	15	45.00	41.10	40.00	43.25	39.00	75.55	84.00	73.70	91.40	151.00

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups (Cont.)

n	Indentation sites	Cercon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
3	1	36.23	41.00	41.00	39.94	39.30	74.95	84.90	82.10	98.80	78.60
	2	38.30	40.71	42.00	42.00	38.90	56.70	80.00	78.20	65.00	81.50
	3	35.00	43.20	39.00	39.90	39.50	47.20	77.20	77.00	83.40	75.60
	4	39.90	41.72	37.00	41.95	40.10	76.30	78.20	73.90	80.00	81.70
	5	44.60	44.40	45.00	42.30	39.44	81.85	74.00	80.50	87.20	87.70
	6	46.00	42.20	40.28	42.90	39.50	96.25	96.50	74.40	89.10	76.90
	7	48.00	45.00	42.00	42.79	39.30	51.50	100.70	75.40	83.50	92.30
	8	41.60	43.75	40.00	43.30	38.70	49.10	80.10	79.90	83.30	97.30
	9	31.91	41.61	47.00	40.60	40.80	58.75	90.60	65.00	61.70	67.80
	10	39.00	42.30	40.00	42.40	41.10	77.40	95.40	86.20	117.10	103.70
	11	38.70	41.33	43.60	41.40	39.20	69.00	81.80	68.00	97.80	84.50
	12	37.10	43.12	43.30	41.12	39.94	78.00	92.00	77.30	89.70	95.40
	13	40.60	40.70	44.90	41.40	39.90	68.30	78.40	69.20	83.30	85.00
	14	39.90	42.70	44.52	41.70	39.11	62.10	74.60	83.00	120.00	96.00
	15	42.25	42.20	40.00	41.90	37.50	58.65	106.30	97.10	70.00	96.80
4	1	38.90	43.00	40.00	40.10	39.50	52.85	76.10	74.90	85.00	76.40
	2	40.10	42.71	43.80	38.40	39.70	57.10	68.90	64.00	78.90	70.30
	3	39.95	43.20	42.40	37.70	39.20	59.45	74.00	75.80	79.00	81.70
	4	37.25	38.00	40.20	38.90	39.00	66.70	75.40	84.90	86.00	84.30
	5	38.30	35.00	40.60	42.10	38.60	89.95	93.10	70.50	88.00	65.30
	6	39.00	40.10	43.60	42.20	40.20	54.40	80.50	68.80	90.80	78.80
	7	37.80	40.20	42.70	42.70	39.90	78.10	82.10	65.40	95.10	76.40
	8	45.01	41.80	44.00	39.30	39.44	54.30	82.20	74.70	96.30	68.30
	9	40.30	40.60	42.60	44.25	39.50	72.30	83.00	69.00	87.60	91.60
	10	38.40	42.20	42.20	39.33	39.49	56.00	84.00	77.50	101.90	77.00
	11	39.90	42.03	43.30	44.51	38.60	55.85	81.20	69.90	93.30	88.00
	12	42.30	42.12	43.20	43.72	39.00	55.10	81.50	67.30	95.60	83.40
	13	44.80	41.70	42.50	43.20	39.10	90.10	82.00	83.00	92.60	72.30
	14	37.10	41.06	44.45	42.60	39.40	64.45	82.70	64.30	96.50	80.00
	15	35.70	42.50	45.70	43.30	38.40	80.25	80.00	73.10	97.00	79.10
5	1	43.25	41.00	41.78	39.90	38.60	63.70	77.30	81.00	86.10	65.00
	2	41.60	40.70	39.93	38.60	38.70	75.20	90.50	64.30	87.00	72.10
	3	43.90	36.00	39.45	39.90	38.40	64.25	74.50	59.70	89.40	75.30
	4	38.25	41.10	48.00	38.20	39.00	64.00	71.90	76.40	90.30	76.10
	5	37.15	39.90	47.20	40.10	39.80	50.55	70.10	83.70	93.80	52.20
	6	35.20	39.40	44.60	41.60	39.90	72.10	92.00	74.70	92.30	71.70
	7	42.70	38.95	45.00	40.10	39.90	61.50	67.60	78.90	96.10	70.00
	8	42.10	40.60	44.00	42.00	40.00	67.75	69.00	71.00	75.30	69.90
	9	44.50	41.20	40.00	40.10	38.90	90.60	72.50	75.00	89.20	67.60
	10	43.20	41.30	43.03	42.00	43.20	56.00	90.70	62.70	94.00	73.70
	11	46.00	39.00	39.00	39.90	38.30	80.70	75.90	77.10	80.00	76.60
	12	52.00	40.40	40.00	41.20	38.70	65.80	91.10	76.10	95.00	70.20
	13	34.90	38.80	40.00	42.30	38.20	73.70	202.30	74.50	93.40	84.20
	14	36.10	38.50	44.61	38.60	38.60	80.70	60.00	79.80	93.00	85.20
	15	40.40	37.70	44.27	39.40	38.20	71.30	91.90	72.00	95.70	70.20

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups (Cont.)

n	Indentation sites	Cercon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
6	1	42.00	38.00	42.00	39.00	39.50	82.00	76.40	70.70	100.70	70.90
	2	40.00	41.60	45.60	39.90	38.20	82.00	65.20	77.80	95.30	75.40
	3	39.40	39.40	38.00	38.40	39.00	70.00	78.40	80.30	86.80	76.00
	4	43.40	42.50	38.30	38.60	38.70	79.00	71.40	73.10	99.60	83.00
	5	34.00	41.90	37.50	42.00	38.80	64.40	76.30	72.90	97.00	62.80
	6	47.20	40.10	40.50	39.40	39.00	118.80	104.50	79.30	97.20	78.40
	7	39.20	44.00	40.60	39.90	39.60	85.10	90.30	81.60	101.30	69.30
	8	38.60	38.10	42.00	41.10	39.40	92.50	108.40	78.40	95.80	71.00
	9	38.40	40.01	48.00	39.40	38.30	97.20	100.00	71.10	107.90	78.80
	10	44.50	40.50	40.90	39.90	42.10	105.00	82.70	73.70	96.30	76.90
	11	47.60	40.90	46.00	40.10	38.00	85.50	77.60	77.10	97.90	71.40
	12	45.00	41.00	41.20	39.90	38.75	87.75	83.70	76.10	97.20	73.30
	13	39.20	39.40	40.50	39.40	39.20	114.70	89.00	74.50	95.30	87.10
	14	37.80	39.94	45.00	37.90	38.50	85.50	52.50	79.80	97.10	78.80
	15	38.90	38.90	42.00	42.00	38.70	133.20	94.00	72.00	93.80	72.40
7	1	45.30	39.00	40.50	39.40	38.70	84.30	72.00	86.50	91.80	77.20
	2	37.00	39.30	40.60	39.50	38.80	68.00	79.30	72.00	96.20	68.40
	3	43.20	39.50	47.00	40.10	39.10	53.60	75.00	71.00	96.10	75.60
	4	45.25	39.60	39.40	40.60	39.70	94.20	69.80	85.00	97.20	72.50
	5	43.15	39.50	40.90	39.45	38.67	75.50	66.00	75.00	91.60	67.10
	6	34.00	39.50	39.94	40.00	39.90	96.20	88.00	82.00	97.30	75.50
	7	39.40	40.00	46.00	40.40	39.80	85.30	98.20	75.00	90.50	65.90
	8	45.25	40.10	38.83	40.00	39.40	106.00	91.40	80.00	101.30	75.60
	9	46.00	40.10	44.61	40.50	39.90	92.30	95.00	65.60	107.70	78.40
	10	49.30	40.10	36.00	40.40	40.01	93.40	78.40	79.50	92.60	69.50
	11	37.80	38.90	48.00	40.60	42.00	131.20	100.00	68.00	85.00	79.10
	12	39.15	39.40	43.20	40.10	40.00	116.20	72.50	77.30	101.70	69.40
	13	36.40	38.50	42.50	40.60	38.00	82.25	84.80	69.20	100.10	79.80
	14	44.90	38.40	44.45	41.20	38.70	104.80	98.40	83.00	85.40	76.40
	15	48.00	38.00	36.60	40.70	38.80	111.00	110.20	97.10	93.80	76.00
8	1	45.00	39.40	34.00	39.00	39.80	68.00	80.00	84.00	91.00	73.50
	2	36.00	35.00	42.20	38.90	40.10	67.30	84.20	78.10	96.50	77.80
	3	38.30	40.90	41.00	40.10	38.80	70.00	82.90	54.30	97.50	74.30
	4	42.80	39.50	44.50	40.50	42.20	60.00	83.00	72.30	95.00	72.50
	5	45.20	39.40	36.00	39.90	41.00	65.50	71.00	104.55	95.40	82.00
	6	48.30	40.00	41.78	41.00	39.40	72.50	105.50	77.10	107.70	71.60
	7	44.10	42.00	41.00	41.20	38.30	76.00	88.00	76.10	110.20	83.00
	8	39.90	38.00	39.45	41.00	42.10	74.00	92.40	74.50	91.50	82.40
	9	45.10	37.90	48.80	39.90	44.00	78.00	80.20	79.80	102.70	87.50
	10	39.20	38.00	42.00	39.50	41.20	94.50	74.00	82.00	94.70	85.00
	11	39.90	37.80	42.00	42.50	41.20	68.00	98.00	68.80	95.00	73.50
	12	47.25	38.50	44.40	39.00	43.30	78.40	88.00	85.00	104.20	60.50
	13	45.10	39.00	41.00	40.60	42.20	70.00	85.60	74.70	109.10	73.50
	14	44.90	39.10	50.00	40.60	39.00	87.30	86.40	69.00	108.00	67.50
	15	66.00	38.50	41.20	41.10	38.20	94.00	90.00	77.50	104.30	80.40

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups (Cont.)

n	Indentation sites	Cercon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
9	1	38.75	41.20	42.00	36.44	38.70	70.02	74.00	63.70	95.30	62.10
	2	37.80	41.60	39.20	38.40	38.80	72.00	70.20	75.20	46.35	71.50
	3	38.90	42.00	39.40	39.40	39.10	68.00	77.20	64.25	97.80	75.80
	4	39.60	39.50	39.90	42.80	39.70	74.00	88.20	84.70	99.40	88.00
	5	39.80	41.90	39.00	45.40	38.67	77.00	82.00	80.00	92.50	78.40
	6	44.80	40.10	42.00	41.60	41.20	73.60	70.00	79.30	103.00	73.40
	7	45.20	38.50	40.00	40.10	43.30	79.00	88.50	81.60	91.30	84.30
	8	39.10	38.10	44.00	42.00	42.20	70.00	100.60	78.40	92.70	75.20
	9	34.95	40.01	43.10	40.10	39.00	80.00	105.30	71.10	85.80	79.20
	10	37.15	40.50	41.20	42.00	38.20	62.80	94.20	73.70	84.20	74.60
	11	38.60	40.90	44.30	36.02	38.50	96.30	94.60	74.40	86.50	78.60
	12	37.30	41.00	44.40	41.50	38.20	60.00	90.10	75.40	122.90	81.60
	13	45.00	39.40	41.00	39.40	47.00	74.40	88.70	79.90	86.50	72.30
	14	43.40	39.94	40.00	36.70	42.00	81.30	98.20	65.00	125.80	83.90
	15	44.30	38.90	40.00	37.80	40.00	68.90	95.60	86.20	89.50	70.00
10	1	38.85	36.00	39.45	39.90	39.40	65.00	89.30	54.40	82.70	79.10
	2	42.25	41.60	38.38	38.60	42.70	64.90	67.50	78.10	103.90	74.00
	3	41.20	39.40	37.83	39.90	41.11	65.40	63.00	65.00	83.00	84.80
	4	44.20	42.50	39.00	38.20	40.02	60.20	86.10	72.30	80.00	79.10
	5	36.00	41.90	40.00	40.10	43.30	88.00	72.50	104.55	88.20	82.40
	6	48.70	40.90	38.00	41.60	41.00	61.90	75.00	70.70	92.20	68.30
	7	38.40	41.00	41.45	40.10	43.00	60.70	103.30	77.80	83.20	79.70
	8	41.10	39.40	39.00	42.00	39.40	78.00	78.20	80.30	87.60	80.90
	9	37.30	39.94	42.83	40.10	38.30	68.60	56.20	73.10	89.80	80.00
	10	45.60	38.90	42.50	42.00	42.10	76.00	86.40	72.90	86.40	75.00
	11	47.00	40.20	44.45	40.00	40.20	70.80	84.00	78.80	96.40	83.40
	12	37.90	42.80	41.60	40.40	39.90	65.20	80.00	76.40	104.40	80.40
	13	39.60	39.90	41.30	40.00	39.44	60.00	83.60	68.30	103.50	76.80
	14	47.15	39.50	40.90	40.50	39.50	65.60	65.00	91.60	77.00	60.20
	15	44.50	38.90	40.60	40.40	39.49	79.50	87.60	77.00	93.30	90.90
11	1	35.20	40.00	39.00	39.40	38.60	81.50	83.60	70.80	100.70	78.60
	2	37.30	39.40	39.10	39.20	38.70	52.60	78.10	77.00	95.30	81.60
	3	37.00	38.50	39.34	39.30	38.90	50.65	83.20	70.00	86.80	72.30
	4	44.75	39.00	38.50	39.90	39.80	52.30	56.60	75.00	99.60	83.90
	5	44.00	39.90	38.44	40.00	39.00	71.30	64.00	79.50	110.00	70.00
	6	37.80	39.40	41.00	40.20	38.90	86.70	92.00	76.40	95.10	83.40
	7	37.15	39.90	41.20	41.10	39.40	95.50	67.60	70.30	106.20	80.40
	8	37.25	38.90	41.30	40.60	39.40	74.00	115.30	81.70	100.90	76.80
	9	43.80	39.90	41.10	39.90	39.90	85.00	105.00	84.30	96.60	60.20
	10	44.95	40.50	41.60	40.60	39.00	80.00	90.70	65.30	110.30	90.90
	11	48.00	41.10	42.20	39.40	39.30	98.40	104.50	74.40	97.20	84.50
	12	39.90	42.00	42.10	41.00	39.70	61.90	90.30	75.40	101.30	95.40
	13	36.70	40.60	41.60	39.40	38.50	106.00	108.40	79.90	95.80	85.00
	14	40.30	39.90	41.40	39.30	39.40	92.30	100.00	65.00	107.90	96.00
	15	40.90	40.70	41.30	40.00	39.60	79.50	82.70	86.20	96.30	96.80

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups (Cont.)

n	Indentation sites	Circon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
12	1	44.20	39.40	39.34	39.90	39.40	68.00	74.00	70.80	86.10	78.40
	2	39.90	39.90	38.50	41.20	39.90	78.40	64.00	65.20	87.00	69.30
	3	44.20	39.00	38.44	42.30	39.00	70.00	76.90	80.00	89.40	71.00
	4	42.90	39.30	39.00	38.60	41.90	87.30	76.50	65.60	90.30	78.80
	5	38.00	39.70	40.90	39.40	40.10	80.00	70.00	79.50	93.80	76.90
	6	40.00	41.20	40.40	40.10	40.70	98.40	77.30	74.00	102.00	78.60
	7	43.05	41.60	41.20	39.90	43.00	74.00	90.50	76.40	81.80	81.50
	8	44.90	39.40	40.50	39.40	39.90	78.00	74.50	68.30	87.70	75.60
	9	45.25	42.50	40.50	37.90	41.00	78.00	71.90	71.00	90.00	81.70
	10	38.45	41.90	42.00	42.00	39.90	75.00	70.10	77.00	91.90	87.70
	11	45.25	40.10	44.30	42.80	40.50	96.20	83.60	78.40	90.40	85.40
	12	39.25	38.50	44.40	45.40	42.00	85.30	78.10	69.30	87.40	83.10
	13	42.10	38.10	41.00	41.60	39.40	106.00	83.20	71.00	84.90	85.40
	14	44.45	40.01	44.50	40.10	39.00	92.30	100.90	78.80	85.40	70.50
	15	48.60	40.50	44.80	42.00	41.90	93.40	84.00	76.90	85.80	151.00
13	1	39.90	38.80	40.60	39.00	39.20	69.00	64.50	81.50	91.00	62.10
	2	40.10	39.00	39.50	38.90	39.90	68.00	70.00	88.50	69.80	71.50
	3	38.30	39.20	41.00	40.10	40.00	53.60	83.60	85.00	68.50	75.80
	4	38.75	39.50	40.50	40.50	38.95	74.00	65.00	66.00	78.00	88.00
	5	44.90	38.80	40.60	39.90	38.50	75.50	67.00	71.30	90.00	78.40
	6	38.00	38.50	38.80	44.90	39.90	65.00	80.00	84.00	97.90	78.60
	7	37.00	38.30	39.34	40.79	39.40	66.00	101.40	80.00	97.20	81.50
	8	40.40	39.50	38.50	44.30	39.50	55.50	82.90	83.60	95.30	75.60
	9	45.25	40.00	38.44	41.10	40.10	78.00	83.00	65.00	97.10	81.70
	10	45.80	38.70	39.00	43.40	39.50	64.00	71.00	87.60	93.80	87.70
	11	44.45	40.60	40.60	41.60	40.00	81.50	89.90	89.90	97.30	79.10
	12	43.25	41.00	39.40	40.10	38.80	52.60	74.90	74.90	90.50	69.40
	13	40.25	39.90	40.90	42.00	39.30	50.65	67.40	67.40	101.30	79.80
	14	39.50	41.10	41.20	40.10	41.00	89.00	83.50	83.50	107.70	76.40
	15	37.70	39.90	43.30	42.00	42.00	71.30	94.30	94.30	92.60	76.00
14	1	35.30	39.00	38.90	38.60	39.40	73.60	65.00	76.40	86.10	73.10
	2	36.60	40.10	38.20	39.40	38.70	74.00	85.20	70.30	87.00	80.00
	3	38.70	38.80	38.30	39.40	38.80	70.00	77.20	81.70	89.40	76.70
	4	39.20	38.50	38.30	37.90	39.00	80.00	88.20	84.30	90.30	65.00
	5	39.50	37.70	38.40	39.50	39.20	62.80	90.00	65.30	93.80	73.10
	6	35.60	39.50	40.60	40.80	39.50	84.30	70.90	73.60	91.00	76.60
	7	37.80	39.40	41.45	39.90	43.00	68.00	96.40	84.50	108.30	70.20
	8	38.60	38.50	41.38	40.00	38.20	63.00	79.10	70.00	100.40	84.20
	9	37.80	38.30	39.83	39.40	39.00	94.20	91.50	80.00	109.50	85.20
	10	40.10	38.00	42.50	39.40	40.10	75.50	106.10	62.80	101.00	70.20
	11	44.90	41.20	42.45	41.75	39.40	96.20	104.50	70.70	86.50	78.60
	12	37.20	41.60	41.60	41.10	39.90	85.30	90.30	77.80	122.90	81.60
	13	43.30	41.40	41.30	42.20	39.00	106.00	108.40	80.30	86.50	72.30
	14	35.40	42.50	40.90	41.70	39.40	92.30	100.00	73.10	125.80	83.90
	15	41.10	41.90	42.10	42.10	39.60	93.40	82.70	72.90	89.50	70.00

Table 92 Crack length values (c) of core-veneered specimens from residual stress test using Vickers indentation test of all groups (Cont.)

n	Indentation sites	Cercon® core surface (µm)					Veneering ceramic surface (µm)				
		Dur	VM7	VM9	CK	emax	Dur	VM7	VM9	CK	emax
15	1	39.45	39.40	38.50	39.40	39.40	68.00	77.30	86.00	81.40	78.60
	2	38.40	39.94	38.44	39.50	39.90	78.40	90.50	84.00	82.20	78.00
	3	45.40	38.90	39.00	40.10	39.00	70.00	74.50	88.00	96.10	75.60
	4	41.60	38.50	38.15	40.60	39.30	81.00	71.90	86.50	97.20	74.60
	5	39.90	39.40	39.40	39.45	39.70	80.00	70.10	54.95	91.60	80.00
	6	43.30	41.20	40.28	39.60	39.40	84.30	75.00	81.50	92.20	88.00
	7	45.90	41.60	40.93	40.10	39.90	68.00	75.00	84.20	83.20	79.70
	8	42.20	40.90	39.95	42.00	39.00	53.60	81.90	89.80	87.60	80.90
	9	45.40	41.00	38.38	40.60	39.30	94.20	83.00	85.00	89.80	80.00
	10	34.90	41.90	41.33	42.00	39.70	75.50	86.40	71.30	86.40	75.00
	11	46.20	39.40	41.60	40.00	40.00	90.30	89.30	78.80	103.00	78.60
	12	39.40	39.90	42.20	40.40	41.00	80.80	67.50	76.40	91.30	81.60
	13	43.85	39.00	42.10	40.30	38.50	77.50	92.00	68.30	92.70	82.20
	14	44.00	39.30	41.60	40.50	42.00	78.50	86.10	91.60	85.80	83.90
	15	35.80	39.70	41.40	40.40	39.50	100.20	72.50	97.00	84.20	80.00

2. Data of crack length values (c) of stress-free (monolithic) specimens**Table 93** Crack length values (c) of stress-free (monolithic) specimens from residual stress test using Vickers indentation test of all materials

Indentation site	Cercon® core (µm)	Dur (µm)	VM7 (µm)	VM9 (µm)	CK (µm)	emax (µm)
1	40.76	80.03	89.45	77.37	93.79	80.97
2	40.20	81.92	89.02	75.68	94.31	82.28
3	40.28	81.39	89.03	75.03	95.24	80.97
4	39.13	82.47	89.36	74.87	95.03	89.36
5	40.36	81.83	89.61	74.92	94.39	81.54
6	39.75	81.26	89.42	76.21	94.06	81.64
7	39.01	82.43	89.03	74.72	95.26	80.87
8	40.69	83.94	86.55	75.22	94.6	82.01
9	40.82	81.91	88.93	75.28	94.73	82.36
10	40.43	82.30	90.54	75.79	94.83	82.04
11	40.41	82.30	88.03	75.04	95.09	82.36
12	40.42	82.76	89.21	73.02	93.29	81.23
13	40.84	81.49	89.63	75.13	94.05	81.98
14	39.88	80.64	88.02	75.23	97.77	81.63
15	39.82	82.76	89.16	71.42	98.55	84.70

RESEARCH PUBLICATION

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