

일부 시판 폴리비닐실록산 인상재의 정밀도에 영향을 미치는 요인분석

1

1	1	1	1
2	2	2	2

1. 서론

cut

가

가

가

가

가 (flow)

가

가 (plasticizers)

가 (tear energy)

가

가

가

가

low viscosity

in vitro

under - 0.05mm

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표 1. Impression materials used

Product	Manufacturer	Viscosity	Lot number
Imprint II	3M ESPE(St. Paul, USA)	LV	8BEX1J1
Twinz	BiscoAsia(Seoul, Korea)	LV	BA07000569
Examixfine	GC(Tokyo, Japan)	LV	0711081
Genie	Sultan(NJ, USA)	LV	110825680

11). light body
가
가

2. 연구대상 및 방법

2.1 연구재료

12).
가
(, 가), (가 light body (viscosity)
,), < 1>.
2).
(Kerr, USA) light body
mixing tip(3M ESPE, Switzerland)

2.2 연구방법

2.2.1 유동성

13).
가
14). Shark
Fin Test . 10Mℓ
Shark Fin Test .



그림 1. Device for shark fin test

mixing tip 가

147g

1

가

가

0.5mm

5

2.2.2 찢김강도

ASTM D624-00

Type C

Type C

Die C

acrylic plate

가

23±2

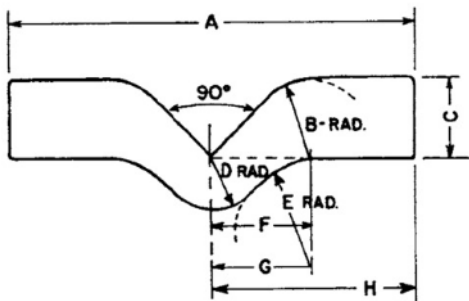
, 24

Universal Testing Machine

(Instron 3366, Instron Co. Ltd. USA)

cross-head speed 500±50mm/min

10



DIE C

그림 2. Die C for tear strength test



그림 3. Tear strength test

2.2.3 압축변형률

ISO 4823(2000)

fixation ring

12.5mm,

20mm

split mold

polyethylene film

fixation ring

1/2

split mold

polyethylene film

가

37

12.25N

가

가

30

5

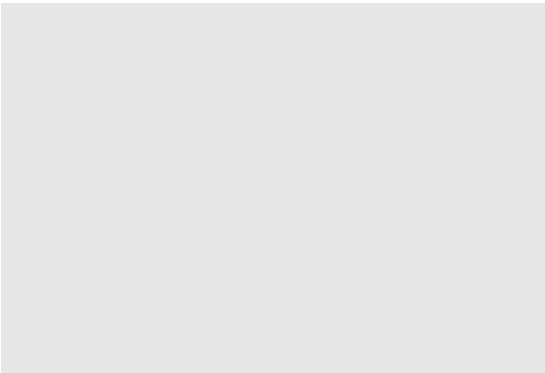


그림 4. Specimen preparation for strain-in-compression test

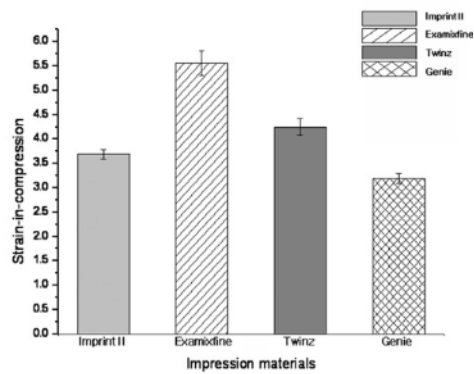


그림 7. Strain-in-compression
($p<0.05$)

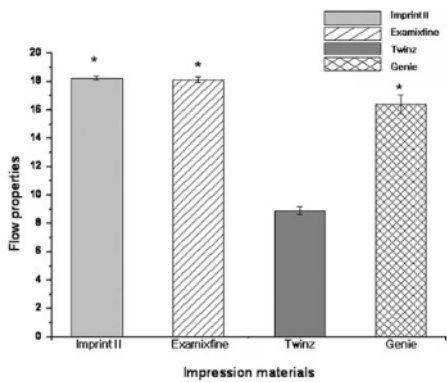


그림 5. Flow properties
* There is no significant difference between groups($p<0.05$).

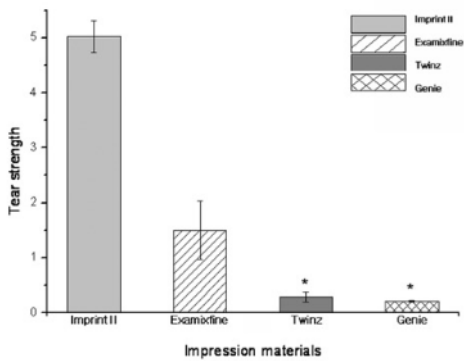


그림 6. Tear strength
* There is no significant difference between Twinz and Genie($p<0.05$).

2.3 자료분석

SPSSWIN 12.0

one-way ANOVA
Pearson's correlation
coefficient

3. 연구성적

3.1 유동성

< 5> . Imprint
가 18.24 ± 0.30 가
Twinz가 8.9 ± 0.62 가
. Imprint , Examixfine, Genie
가 ($p<0.05$).

3.2 찢김강도

< 6> .
Imprint 가 가 Genie
가 가 . Twinz Genie
가

표 2. Correlation Between tests

	Flow properties	Tear strength	Strain-in-compression
Flow properties	1.000	.502*	.077
Tear strength	.502*	1.000	.219
Strain-in-compression	.077	.219	1.000

* p<0.05

(p<0.05).

3.3 압축변형을

(p<0.05). Examixfine⁵⁾,
5.56±0.56 가 Twinz ,
Imprint , Genie
3.19±0.23 가 < 7>.

16)

3.4 실험유형별 상관관계

Rheometer Shark Fin
Test
Shark Fin Test
Pearson's correlation coefficient , Imprint 가
< 2> Examixfine
Genie, 가
가 filler 가
(p<0.05).

4. 총괄 및 고안

가 가
가
15)
가 5)
가 German 6)
가

가 .
(tearing rate)
가 가 2,20). Lawson
가 11) Boghosian and Lautenschlager
가 0.1mm
가 .
24
가 tearing rate
가
가
가 ASTM
2.3±1.0mm (0.09±0.04in)
가 tearing rate 500±50mm/min (20
±2.0in/min) . Klooster
17,18) 21) tearing rate
가 tearing rate
가
가 가 가 가 가
(flex-
ibility/stiffness)
가
가
radiopaque 22,23) .
2)
Imprint 가 가
Genie가 가 14)
Genie가 가
Examixfine 가
24) Examixfine 가
가
가
ISO 4823
light body 0.8~20%
13) 가
가 (thinner) 가

가 , , 가 , , . 가

10, 25)

14)

cross-linking,

가 가

13)

1. Imprint 가 18.24
0.30 가 Twinz가 8.9±
0.62 가 . Imprint ,
Examixfine, Genie 가
(p<0.05).

Fano 26)

가 , Mandikos²⁷⁾ 가

가 가

2. Imprint 가 가
Genie가 가
. Twinz Genie
가 (p<0.05).

28)

3. (p<0.05). Examixfine
5.56±0.56 가
Twinz, Imprint , Genie
3.19±0.23 가

4.

가 (p<0.05).

가 .
가

가

가

5. 결론

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 Polyvinylsiloxane putty
 light body .
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Abstract

Investigation of factors influenced on accuracy of polyvinylsiloxane

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Key words: flow, polyvinylsiloxane, strain-in-compression, tear strength

In this study, polyvinylsiloxane impression materials were investigated to examine the characteristics of the impression materials that affect the accuracy of the final restoration. The flow property of impression materials which can reproduce the detail in the oral cavity and accurately duplicate it, and the tear strength and strain-in-compression which can cause problems when it is being removed from the oral cavity were studied. The results are as follows.

1. As for the flow properties of impression materials, Imprint was 18.24 ± 0.30 , which was the highest; and Twinz was 8.9 ± 0.62 , which was the lowest. There was no significant difference among Imprint, Examixfine, and Genie ($p < 0.05$).
2. As for the tear strength of impression materials, Imprint had the highest level, while Genie had the lowest value. There was no significant difference between Twinz and Genie ($p < 0.05$).
3. As for the strain-in-compression, there were significant differences by impression material groups ($p < 0.05$); the strain-in-compression of Examixfine was shown to be the highest at 5.56 ± 0.56 , Twinz and Imprint followed respectively, and Genie has the lowest at 3.19 ± 0.23 .
4. Flow showed the correlation with tear strength but no significant connection to strain-in-compression. Also, there was no significant correlation between the tear strength and strain-in-compression ($p < 0.05$).

Making impression to reproduce oral tissue and tooth is an important part of making final restoration. The accuracy of impressions is influenced by the methods of taking impression or other condi-

tion. However the property itself of impression materials is the most essential and the materials with proper qualities should be selected.

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