Table 1. Brands, manufacturers, batch numbers, composition and powder/liquid ratio and color of conventional restorative glass-ionomer cements tested.

Material (Manufacturer)	Code	Batch no.		Composition	Powder / liquid ratio	Color
Bioglass R (Biodinâmica, Ibiporã, Brazil)	B	Powder:	974/15	Calcium, Barium and Aluminum Fluorosilicate, PA and Inorganic Filler.	1.6:1	A3
		Liquid:		PA, TA and Water		
Chemfil Rock (Dentsply, Milford, United States)	Ch	Powder:	1511000724	Zinc-modified fluoro alumino silicate glass	capsules*	A2
		Liquid:		PA and itaconic acid		
Equia Forte (GC Corporation, Tokyo, Japan)	EF	Powder:	1608181	Fluoro-alumino-silicate glass, PA powder, Pigment	capsules*	A2
		Liquid:		PA, Distilled water, Polybasic carboxylic acid		
Gold Label 2 (GC Corporation, Tokyo, Japan)	GL2	Powder:	1601161	Fluoro-alumino-silicate glass and PA powder	2.7:1	Pale Yellow
		Liquid:	1601121	Distilled water and PA		
Gold Label 9 (GC Corporation, Tokyo, Japan)	GL9	Powder:	1506021	Fluoro-alumino-silicate glass, PA powder	3.6:1	A2
		Liquid:	1506011	PA, polybasic carboxylic acid		
Glass Ionomer Cement Type II (Shofu Inc., Kyoto, Japan)	GI	Powder:	6144	Fluoro-alumino-silicate glass	2.5:1	#3 Gray Shade
		Liquid:	31513	Copolymer of acrylic acid and tricarboxylic		

				acid, TA and others		
Ionglass (Maquira Dental Products, Maringá, Brazil)	IG	Powder:	130417	PA and sodium fluorosilicate, calcium and aluminium	1.5:1	A3
		Liquid:		TA and purified water		
Ion Z (FGM, Joinville, Brazil)	IZ	Powder:	140116	Fluoro-alumino-silicate glass	1.7:1	A3
		Liquid:	130116	PA and TA		
Ionomaster (Wilcos, Petrópolis, Brazil)	IM	Powder:	15336	Calcium Fluoro-alumino-silicate glass powder, tartaric acid, citric acid, pigments	3 :1	U
		Liquid:	15335	Water, PA, pigments		
Ionofil Plus (VOCO GmbH, Cuxhaven, Germany)	IF	Powder:	1509454	Fluoro-alumino-silicate glass and PA	4.7-5.6:1	A2
		Liquid:	1506325	TA		
Ionostar Plus (VOCO GmbH, Cuxhaven, Germany)	IS	Powder:	1607068	Fluoro-alumino-silicate glass, PA, TA	capsules*	A2
		Liquid:		PA solution		
Ketac Molar Easymix (3M ESPE, Seefeld, Germany)	KM	Powder:	627356	Al-Ca-La fluorosilicate glass, copolymer acid (acrylic and maleic acid)	4.5:1	A3
		Liquid:	624889	PA,TA, water		
Magic Glass (Vigodent, Rio de Janeiro, Brazil)	MG	Powder:	1503044	Strontium, aluminum, fluoride, silicate,PA,TA and pigments	2.7:1	U
		Liquid:	1401244	PA, water		
Maxxion R (FGM, Joinville, Brazil)	MA	Powder:	21117	Fluoro alumino silicate glass, PA, calcium fluoride, water	1.5:1	A3
		Liquid:	260917			

Riva (SDI, Victoria, Australia)	R	Powder:	150630V	Glass powder and Acrylic acid polymers	3.03:1	A2
		Liquid:	15312	Acrylic acid polymers and TA		
Vidrion R (SS White, Rio de Janeiro, Brazil)	V	Powder:	220716	Sodium fluoro silicate, calcium, aluminum, barium sulphate, PA, pigments.	5.8:1	U
		Liquid:		TA, water		
Vitro Fil (Nova DFL, Rio de Janeiro, Brazil)	VF	Powder:	16030374	Fluorine Strontium Aluminum Silicate, Dehydrated Polyacrylic Acid and Iron Oxide	2:1	A3
		Liquid:	16030373	PA, TA and Distilled Water		
Vitro Molar (Nova DFL, Rio de Janeiro, Brazil)	VM	Powder:	16020279	Fluorine Barium Aluminum Silicate, Dehydrated PA and Iron Oxide	2.9:1	A3
		Liquid:	16020278	PA, Tartaric Acid and Distilled Water		

* Information was not provided by the manufacturer

PA - Polyacrylic acid; TA - Tartaric acid

Table 2. Means and standard deviations (SD) of CIELab color coordinates of different brands of conventional glass-ionomer cements after 7 days in black and white background.

	Black			White		
Brand	***L**(SD)**	***a** (SD)**	***b** (SD)**	***L**(SD)**	***a**(SD)**	***b**(SD)**
B	67.0(1.7)	-0.9(0.2)	12.4(2.1)	83.7(1.4)	0.4(0.3)	23.2(2.7)
IZ	73.6(2.3)	-1.2(0.4)	10.0(3.5)	86.8(1.4)	-0.2(0.2)	21.6(4.1)
VF	71.1(1.7)	-1.0(0.3)	10.4(1.1)	85.5(0.8)	-0.0(0.2)	19.8(1.5)
IG	73.6(1.0)	-0.9(0.3)	13.2(1.7)	85.3(0.9)	0.4(0.5)	24.4(3.1)
MG	77.8(1.4)	-2.7(0.2)	9.2(1.0)	88.5(0.4)	-2.0(0.3)	19.6(1.1)
IS	71.3(0.7)	-0.1(0.1)	17.1(0.6)	81.3(0.6)	2.3(0.5)	27.3(1.7)
GL9	73.9(0.6)	-0.1(0.1)	10.7(0.4)	83.5(0.8)	1.8(0.2)	21.3(0.7)
IF	75.2(1.6)	0.1(0.1)	13.3(1.1)	82.5(0.7)	2.6(0.3)	25.0(2.0)
IM	78.3(1.1)	-1.6(0.0)	4.7(0.5)	89.4(0.1)	-1.1(0.1)	12.9(0.4)
VM	76.4(0.6)	-0.7(0.1)	13.6(0.8)	84.5(0.9)	1.1(0.4)	22.6(0.9)
GI	68.6(1.6)	-0.1(0.2)	19.1(1.6)	77.6(1.7)	1.7(0.9)	27.0(2.1)
EF	73.4(0.9)	0.7(0.1)	14.4(0.7)	80.9(0.8)	3.2(0.2)	23.3(0.9)
GL2	74.3(0.1)	-1.6(0.1)	11.4(0.1)	83.1(2.0)	-1.0(0.4)	17.9(1.0)
KM	77.5(0.5)	-0.6(0.1)	16.4(1.3)	82.8(0.7)	1.7(0.2)	23.8(0.7)
R	81.3(2.1)	-0.6(0.1)	9.9(1.0)	86.4(0.5)	0.6(0.1)	17.5(1.5)
Ma	84.1(0.8)	-1.0(0.3)	10.2(0.5)	86.7(1.1)	-1.3(0.5)	18.2(0.8)
V	80.5(3.0)	-1.3(0.3)	10.1(2.4)	83.6(2.0)	-0.8(0.2)	14.6(3.5)
Ch	77.1(3.0)	-1.1(0.3)	12.4(0.4)	78.7(0.3)	-0.2(0.1)	15.9(0.7)

*L**: Lightness; *a**: green-red coordinate; *b**: blue-yellow coordinate.

Table 3. Means and standard deviations (SD) of Contrast ratio (*CR)* values after 7 days of different brands of conventional restorative glass-ionomer cements.

Brand	Mean (SD)	Min-Max	Significance
B	0.6 (0.0)	0.5 - 0.6	a
VF	0.6 (0.0)	0.6 - 0.7	a,b
IZ	0.7 (0.0)	0.6 - 0.7	b,c
IG	0.7 (0.0)	0.7 - 0.7	b,c,d
IM	0.7 (0.0)	0.7 - 0.7	b,c,d,e
GL9	0.7 (0.0)	0.7 - 0.8	c,d,e
MG	0.7 (0.0)	0.7 - 0.7	c,d,e
IS	0.7 (0.0)	0.7 - 0.7	c,d,e
GI	0.7 (0.0)	0.7 - 0.7	c,d,e
GL2	0.8 (0.0)	0.7- 0.8	d,e
VM	0.8 (0.0)	0.8 - 0.8	d,e,f
EF	0.8 (0.0)	0.8 - 0.8	d,e,f
IF	0.8 (0.0)	0.8 - 0.9	e,f
KM	0.9 (0.0)	0.8 - 0.9	f,g
R	0.9 (0.0)	0.8 - 0.9	g
V	0.9 (0.1)	0.8 - 0.9	g,h
Ma	0.9 (0.0)	0.9 – 1.0	g,h
Ch	1.0 (0.0)	0.9 – 1.0	h

*Tukey's Test ($p<0.05$). Different letters indicate statistical significance.

Table 4. Means and standard deviations (SD) of translucency parameter (TP) values of different brands of conventional restorative glass-ionomer cements after 7 days.

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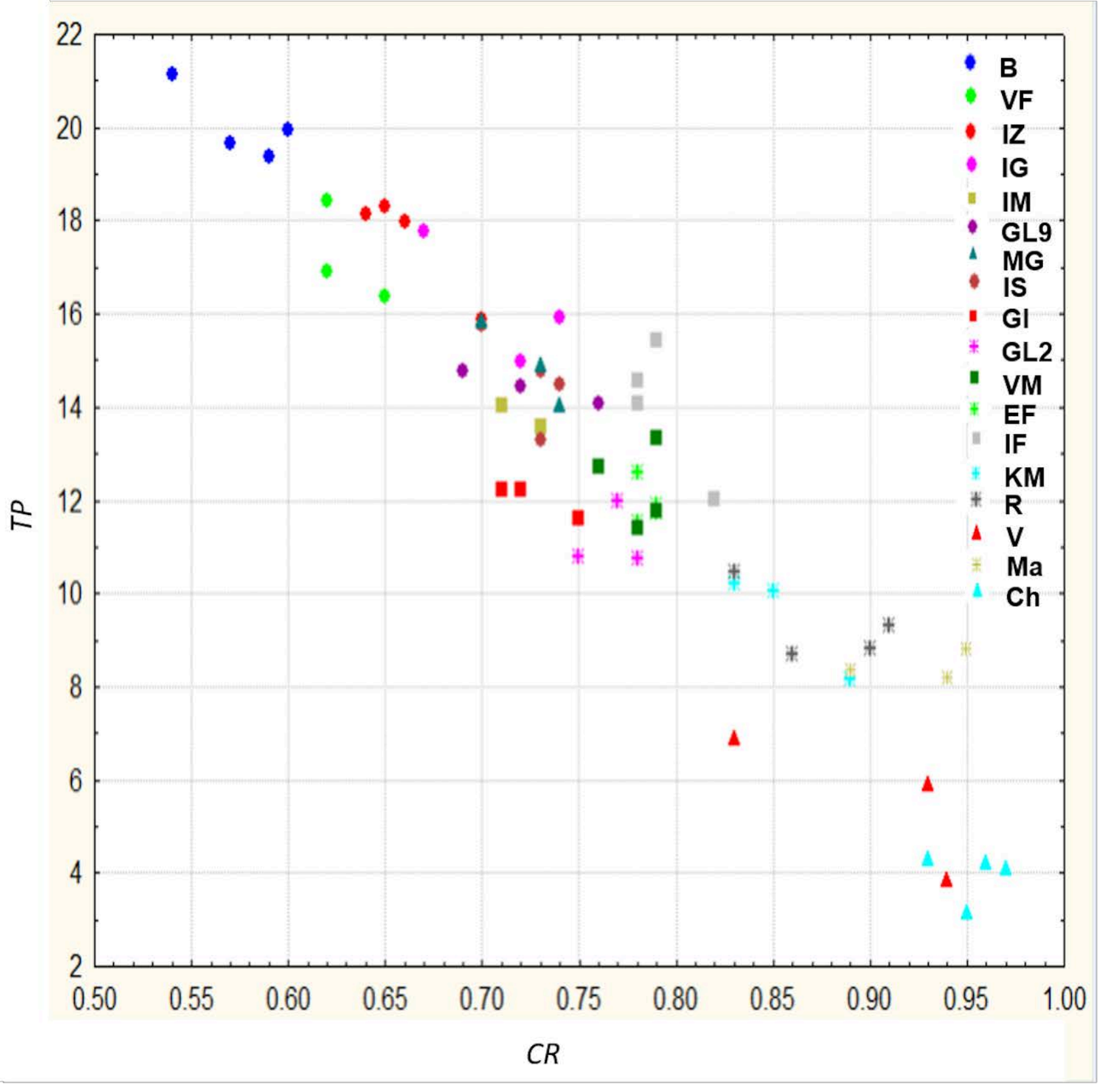
Brand	Mean	SD	Min – Max	Significance
B	20.0	0.8	19.4 - 21.1	a
IZ	17.6	1.1	15.9 - 18.3	b
VF	17.2	1.1	16.4 - 18.4	a,b,c
IG	16.2	1.4	15.0 - 17.8	b,c,d
MG	14.9	0.9	14.0 - 15.8	b,c,d,e
IS	14.6	1.0	13.3 - 15.8	c,d,e,f
GL9	14.4	0.4	14.1 - 14.8	c,d,e,f,g
IF	14.0	1.4	12.0 - 15.4	d,e,f,g
IM	13.8	0.3	13.6 - 14.0	c,d,e,f,g,h
VM	12.3	0.9	11.4 - 13.3	e,f,g,h
GI	12.0	0.3	11.6 - 12.2	f,g,h,i,j
EF	11.9	0.5	11.5 - 12.6	g,h,j
GL2	11.2	0.7	10.8 – 12.0	h,i,j,k
KM	9.5	1.1	8.2 - 10.2	i,j,k
R	9.3	0.8	8.7 - 10.5	i,k
Ma	8.5	0.3	8.2 - 8.8	k
V	5.6	1.5	3.9 - 6.9	l
Ch	3.9	0.5	3.2 - 4.3	l

*Tukey's Test ($p<0.05$). Different letters indicate statistical significance.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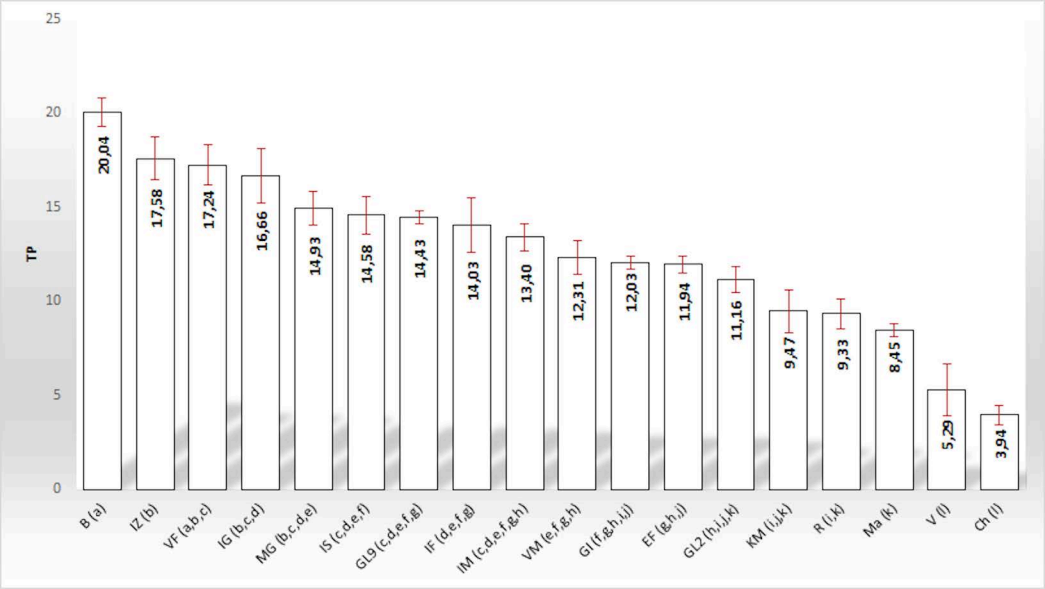
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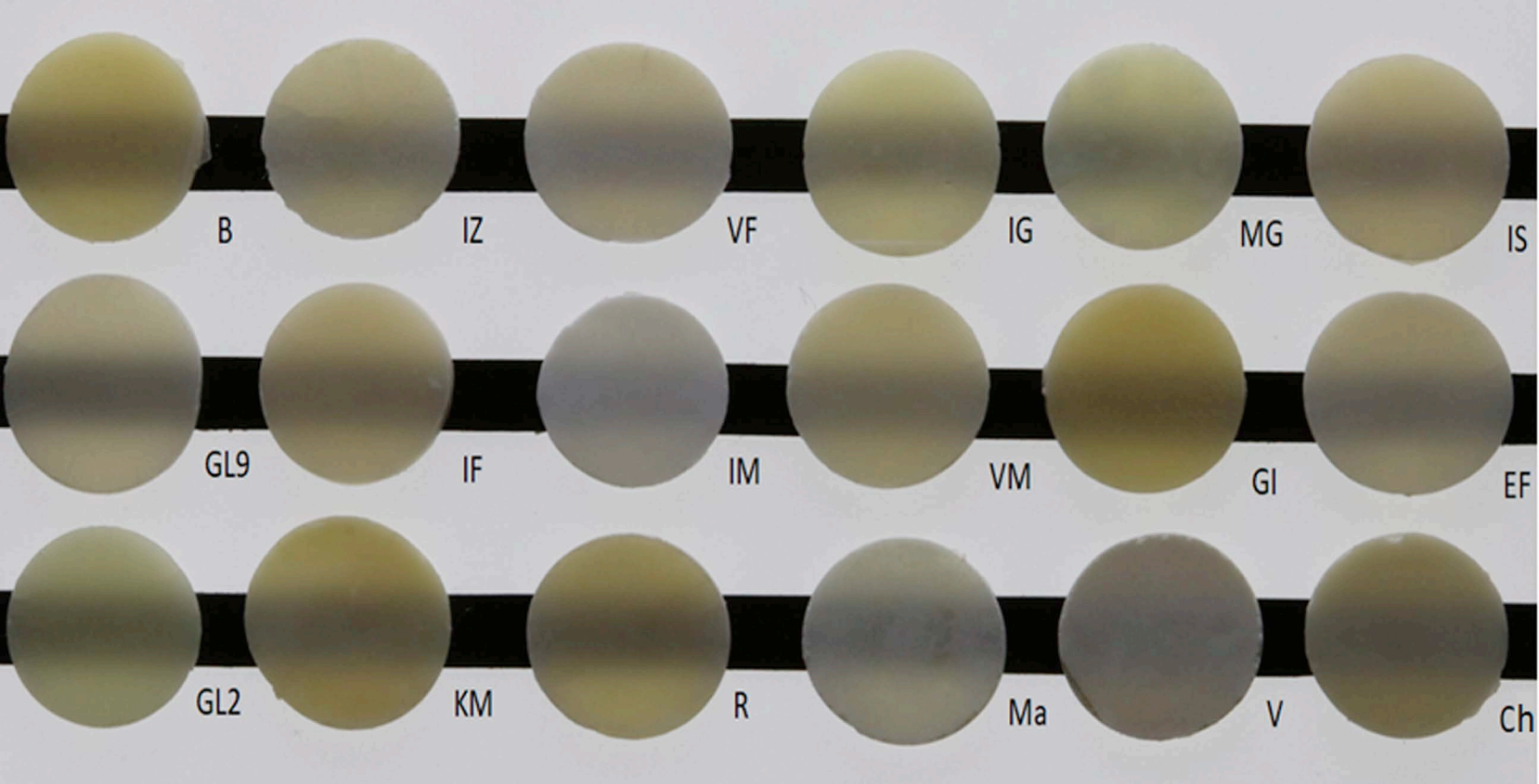
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