

Table: Professionally Applied Dentin Desensitizers

PRODUCT CLASS	MODE OF ACTION	BRAND NAME	MEASURES	CLINICAL RESULTS
Oxalate products	Tubule occlusion (see Figure 2)	BisBlock (Bisco), Protect (SunStar), SuperSeal (Phoenix), D'Sense Crystal, (Centrix Direct)	Air blast, tactile, <i>in vivo</i>	Camps & Pashley, 2003; 3% potassium oxalate reduced clinical dentin sensitivity (p<0.01) to air or tactile over water controls.
		Sensodyne Sealant (GlaxoSmithKline), Pain-Free (Parkell), MS-Coat (Sun Medical)	Patient self-reports	Pillon <i>et al.</i> , 2004; 3% oxalate reduced sensitivity compared to placebo gel.
Calcium phosphate desensitizers	Tubule occlusion (see Figure 3)	D/Sense 2 (Centrix Direct), Quell Desensitizer (Pentron Clinical Technologies)	Quantitative permeability reductions, <i>in vitro</i>	Kolker <i>et al.</i> , 2002; This <i>in vitro</i> study reported that the largest permeability reductions were obtained with SuperSeal (oxalate) > Hurri Seal = Gluma = D/Sense 2 = Seal & Protect. No clinical reports available.
5% NaF varnish	Tubule occlusion	Durphat (Colgate Oral Pharm.), Duraflor (Pharmascience)	Tactile, cold, air blast	Merika <i>et al.</i> , 2006; In a 4 week study, both Duraphat and Super Seal, an oxalate product were effective at reducing dentin sensitivity.
		Cavity Shield (OMNI Oral Pharm.), Fluor Protector (Ivoclar Vivadent), AllSolutions Fluoride Varnish (Dentsply)	Air blast, ice	Ritter <i>et al.</i> , 2006; Both Duraphat and AllSolutions Fluoride Varnish were effective in reducing dentin sensitivity for 24 weeks.
Glutaraldehyde-HEMA	Protein precipitation/tubule occlusion (see Figure 4)	Gluma Desensitizer (Heraeus Kulzer), MicroPrime G (Danville), Glu/Sense (Centrix Direct), HemaSeal G (Germiphene)	Tactile, air blast	Kakaboura <i>et al.</i> , 2005; This clinical trial compares the desensitizing effects of Gluma vs. One-Step adhesive. Both were effective immediately and at 8 weeks but Gluma gave better desensitization after 9 months compared to a water control.
		Gluma vs. Fuji VII	Air blast	Polderman <i>et al.</i> , 2007; compared Gluma to Fuji VII GIC in a split mouth design. Although both treatments reduced sensitivity, Fuji VII was better after 24 months.
HEMA + other	Protein ppt./tubule occlusion	Hurri-Seal Dentin Desensitizer (Beutlich Pharm.), HemaSeal & Cide (Germiphene), MicroPrime B Desensitizer (Danville)	Quantitative permeability reductions, <i>in vitro</i>	Kolker <i>et al.</i> , 2002; This <i>in vitro</i> study found HurriSeal to be as effective as Gluma or D/Sense 2 or Seal & Protect.
NaF, SnF ₂	Tubule occlusion	DentinBloc (Colgate Oral Pharm.)	Air blast Tactile	Thrash <i>et al.</i> , 1992; In this doubleblinded clinical trial, Dentin Bloc was compared to Gel Kem, both applied 2 X/day vs. a water control group. The DentinBloc treated teeth were less sensitive after 2 weeks than the other two groups. An additional group revealed that Dentin Bloc could desensitize in 15 min. participants in the new dentifrice group demonstrated statistically significant improvements (p <0.05) in tactile and air blast sensitivity, as compared to those using the positive and negative control dentifrices.
		DentiBloc (Colgate Oral Pharm.) vs. Pain-Free (Parkell)	Air blast, tactile	Morris <i>et al.</i> , 1999; Compared clinical effects of DentinBloc vs. Pain-Free. Both products and the placebo decreased dentin sensitivity for up to 3 months. No significant differences were found between the 3 groups.

	PRODUCT CLASS	MODE OF ACTION	BRAND NAME	MEASURES	CLINICAL RESULTS
	Light-cured adhesives	Tubule occlusion (see Figure 5)	Seal & Protect (Dentsply)	Air blast	Baysan <i>et al.</i> , 2003; Seal & Protect decreased dentin sensitivity for 19 months but no controls were used.
			One-Step (Bisco) vs. Gluma	Tactile, air blast	Kakaboura <i>et al.</i> , 2005; Both treatments reduced DH immediately and after 8 weeks compared to water treatment placebo.
			Single Bond (3M-ESPE) vs. MS Coat (Sun Medical)	Air blast, cold, tactile	Prati <i>et al.</i> , 2001; After 4 weeks, both treatments were equally effective at reducing sensitivity using all stimuli. This was a randomized, double-blind study.
			Prime & Bond 2.1 (Dentsply)	Air blast, cold	Swift Jr <i>et al.</i> , 2001; Application of Prime & Bond 2.1 significantly reduced sensitivity compared to pretreatment controls for up to 24 weeks.
				Quantitative permeability	Tagami <i>et al.</i> , showed that many adhesives reduce dentin permeability by ppt. plasma proteins.
	Glass-ionomer cements	Tubule occlusion	Vitrabond-like (3M-ESPE) vs. Gluma (Heraeus Kulzer)	Tactile, cold	Tantbirojn <i>et al.</i> , 2006; A Vitrabond-like GIC was compared to Gluma over a 12 month study. Both treatments significantly reduced dentin sensitivity, but the GIC material was generally more effective.
			Fuji VII (GC) vs. Gluma (Heraeus Kulzer)	Air blast	Polderman <i>et al.</i> , 2007; compared Fuji VII GIC with Gluma over 25 months. Although both materials were effective, the GIC was more effective at every time period.
	Desensitizing dentifrices	Lower nerve sensitivity	5% KNO ₃ (Sensodyne)	Air blast, cold, tactile	Nagata <i>et al.</i> , 1994; Relief of subjective symptoms throughout the 12 weeks' examination was noted in 67% of the subjects in patients using a 5% KNO ₃ -containing dentifrice; Schiff <i>et al.</i> , 2000; After 4- and 8-weeks' use of a 5% KNO ₃ -containing dentifrice, participants in the new dentifrice group demonstrated statistically significant improvements ($p < 0.05$) in tactile and air blast sensitivity, as compared to those using the positive and negative control dentifrices.
	Potassium-containing products	Lower nerve sensitivity	3-5% KNO ₃ radent Products, 3%), Relief (Discus Dental, 5%), Desensitize (Den Mat, 5%)	Self-reports	Haywood <i>et al.</i> , 2001; In a clinical trial of tray bleaching, 16 of 30 patients developed tooth sensitivity. Of the 16 sensitive patients, 12 used 5% KNO ₃ gel containing 1000 ppm F for 10-30 min to reduce sensitivity. Eleven of the 12 obtained relief. No placebo gels were used.