

TABLE 1-continued

Example No.	Liquid for conditioning	pH
32	15.4% by weight of glycine	2.0
	9.5% by weight of maleic acid	
	86.0% by weight of water	
33	4.5% by weight of glycine	2.4
	9.4% by weight of maleic acid	
	84.5% by weight of water	
34	6.1% by weight of glycine	2.8
	9.2% by weight of maleic acid	
	82.9% by weight of water	

A commercially available synthetic filling composition was used.

The surface was then treated with a liquid of Examples 1 to 35 for 60 seconds in each case. The treated area is then rinsed with distilled water and dried with air.

The area conditioned with the liquids of Examples 1 to 35 is then treated with the coating agent according to Example 36 for 60 seconds. The area is then dried with air.

The shear strength on dentin is summarized in Table 2 and that on enamel in Table 3.

TABLE 2

Liquid according to Example No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Shear strength (MPa)	6.1 ± 2.0	13.8 ± 3.2	10.7 ± 4.4	6.9 ± 2.2	8.2 ± 3.7	13.2 ± 4.4	21.6	20.9	29.7	19.9	18.9	15.0	9.9
Liquid according to Example No.	14	15	16	17	18	19	20	21	22	Comparison		26	
Shear strength (MPa)	15.5	5.6	12.3	10.6	8.8	9.5	12.7	10.9	1.9 ± 0.9	3.9 ± 1.3	13.4 ± 2.9	16.8 ± 5.6	14.6 ± 6.7
Liquid according to Example No.	27	28	29	30	31	32	33	34	35				
Shear strength (MPa)	14.7 ± 3.4	18.9 ± 2.2	8.8 ± 2.5	10.6 ± 4.6	12.3 ± 4.5	10.9 ± 2.5	12.7 ± 1.4	9.5 ± 2.3	5.4 ± 3.1				

TABLE 3

Liquid according to Example No.	2	6	7	8	9	10	11	25	27	28	29	30	31
Shear strength (MPa)	23.7 ± 3.6	24.7 ± 4.3	13.1	14.9	17.1	20.5	24.3	10.7 ± 0.9	9.9 ± 2.4	8.4 ± 1.3	16.4 ± 2.7	13.6 ± 1.8	10.5 ± 1.7

35	7.9% by weight of glycine	2.4
	10.0% by weight of oxalic acid	
	78.0% by weight of water	
	12.0% by weight of glycine	

It will be understood that the specification and examples are illustrative but not limitative of the present invention and that other embodiments within the spirit and scope of the invention will suggest themselves to those skilled in the art.

We claim:

1. A solution for conditioning tooth or bone matter comprising an aqueous solution of an acid with a  $pK_A$  value of less than +5 and of an amphoteric amino compound with a  $pK_A$  value from 3.9 to 12.5 and a  $pK_B$  value from 10.5 to 13.5, the solution having a pH from 0.1 to 3.5.

2. A solution according to claim 1, wherein the acid has a  $pK_A$  value from -9 to +5.

3. A solution according to claim 1, wherein the amphoteric amino compound has a  $pK_A$  value from 9.0 to 10.6 and a  $pK_B$  value from 11.5 to 12.5.

4. A solution according to claim 1 having a pH from 1.5 to 2.5.

5. In the filling of a tooth with a plastic filling material wherein the dentin of the tooth to be filled is pretreated with a liquid, and the treated tooth is then filled, the improvement which comprises employing as the pretreatment liquid a solution according to claim 1.

6. The process according to claim 5, wherein between the pretreatment and the filling the tooth is coated.

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EXAMPLE 36 (COATING AGENT)

A formulation of 5% by weight of glutaraldehyde, 35% by weight of hydroxyethyl methacrylate and 60% by weight of water is used as the coating agent.

EXAMPLE 37 (TESTING OF THE BONDING STRENGTH)

The bonding strength (shear strength) between the dentin or enamel and a commercially available synthetic filling composition is measured in the example.

Human teeth which have been extracted and kept in the moist state are used for the test. The teeth are embedded by casting in epoxy resin; a smooth surface is produced by wet grinding. Final grinding is carried out with carbon paper 1000.

Examples Nos. 1 to 6 and 22, 23 and 24 were measured in accordance with the method of Bowen [J. Dent. Res. 1965, 44, 690 to 695].

Other examples were measured in accordance with the method of Munksgaard, Iric & Asmussen [J. Dent. Res. 64 (12), 1409 to 1411 (1985)].