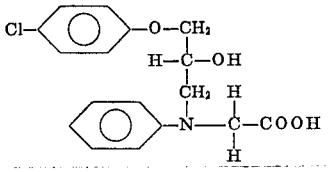
EXAMPLE I

NPG–CGE

This coupling agent, NPG–CGE, is the addition reaction product of N-phenylglycine and p-chlorophenyl glycidyl ether (CPE). CPE (also called p-chlorophenyl-2,3-epoxypropyl ether, 0.527 mol, dissolved in 293 g methanol) was added dropwise to stirred aqueous N-phenylglycine (0.527 mol, brought to pH 7–9 with 0.527 mol of NaOH in 284 g H_2O) over a 2-hour period. The reaction was slightly exothermic. The temperature was 30° ± 5° C. the first hour and 50° ± 5° C. for 3 hours due to external heating. The reaction mixture was acidified to pH 3.8 with 0.527 mol HCl (concentrated aqueous solution), giving a crystalline precipitate (153.4 g net; 87 percent of theoretical yield; m.p. 93°–102° C. after recrystallization from methanol). The structural formula of NPG–CGE is:



A 5 percent acetone solution was prepared and used to evaluate the capacity of this coupling agent, NPG–CGE, to improve adhesion between a resinous composite material and human dentin. An adhesion test was utilized which was previously reported in U.S. Pat. No. 3,200,142 at paragraphs 5 and 6. The results are shown in Table 1 below.

TABLE 1

[Adhesion between a composite restorative material and dentin as influenced by the application of a primer]

	Days in water before testing	P.s.i.*	S.D.†	V.‡
NPG-CGE primer	1	280	26	9
Acetone control	1	30	27	90
NPG-GMA primer	1	320	94	29

*Pounds per square inch; average of 6 measurements.

† Standard deviation $= \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$

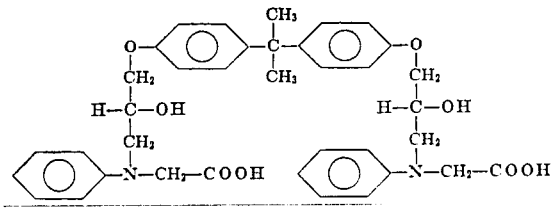
‡ Coefficient of variation $= \frac{S.D.}{\bar{x}}$ (100%).

EXAMPLE II

Diglycidyl Ether of Bisphenol A/N-Phenyl Glycine

An adhesive varnish was synthesized by the dropwise addition of 0.5 mol of the diglycidyl ether of bisphenol A (dissolved in a mixture of 174 g methanol and 22 g acetone) over a 3-hour period to 1.0 mol of the sodium salt of N-phenyl glycine (dissolved in 506 g methanol and 150 g water) with stirring, and with an additional 4 hours at 70° C. The product was precipitated by the addition of 0.5 mol of calcium chloride (dissolved in 133 g water), filtered and dried. The apparent yield was quantitative. The liquifying temperature was 180°–200° C.

The calcium salt prepared above appeared to be insoluble in water, methanol, acetone or ether. It was slurried in 423 g acetone, and 1 mol of hydrochloric acid and 500 g water were added, resulting in two phases. The aqueous phase was discarded and 500 ml benzene was added. The solution was washed twice with 500 ml of water and subsequently was washed with 500 ml of cyclohexane, thinned with 290 g methanol and then washed twice with water, three times with boiling water, and finally with boiling cyclohexane, to remove contaminants. After drying overnight at 120° C. and 180 mm Hg, the product was a clear brown amorphous glass (220 g; 69 percent yield). Its structural formula is:



The varnish product was prepared by dissolving the product in acetone giving an 8.4 percent solution. The results as to adhesion to dentin are summarized in Table 2 below. Separate testing by independent operators verified the specific results given in the tables.

TABLE II

[Adhesion between a composite restorative material and dentin as influenced by the application of varnishes]

	Days in water before testing	P.s.i.*	S.D.†	V.‡
Acetone control	1	20	20	95
Adhesive varnish	1	280	91	33
Copalite ® varnish	1	120	84	69
Acetone control	3	60	32	56
Adhesive varnish	3	200	104	52

*Pounds per square inch; average of 6 measurements.

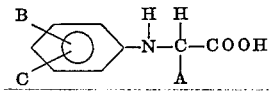
† Standard deviation $= \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$

‡ Coefficient of variation $= \frac{S.D.}{\bar{x}}$

Adhesion to human enamel is generally better than to human dentin; the results with dentin shown here are thus more critical.

The embodiments of this invention for which an exclusive property or privilege is claimed are defined as follows:

1. A dental primer varnish preparation suitable for adhering to a dental substrate consisting of the reaction product of an N-phenyl glycine (NPG) moiety selected from



where A = H, CH_3
B = H, CH_3, OCH_3, p-Cl phenoxy
C = H, CH_3

and a glycidyl ether moiety selected from the group of p-chlorophenyl glycidyl ether, diglycidyl ether of bisphenol A, diglycidyl ether of tetrachloro bisphenol A, and tetraglycidoxytetraphenylethane, solubilized in a solvent selected from acetone, chloroform and ether at a strength of about 5–15 percent by weight wherein said reaction product is produced by reacting a molecule of the glycidyl ether with at least one molecule of the glycine to satisfy each glycidyl ether group present, said reaction being conducted at a temperature of about 30°–70°C for a period of 3–4 hours.

2. A varnish preparation according to claim 1 wherein the NPG moiety is N-phenyl glycine and the aromatic glycidyl ether moiety is p-chlorophenyl glycidyl ether in about 5–15 percent weight in acetone.

3. A varnish preparation according to claim 1