In order to avoid, insofar as is possible, situations wherein it is necessary to replace the polishing material prior to the surface of the polishing material being used up, it is desirable to prevent (a) a reduction in the adhesive strength through the machining working fluid soaking into the interface between the polishing material and the double-sided adhesive tape for securing the polishing material, (b) the occurrence of peeling, due to loads received during the rubbing motion at the time of polishing in contact with the object being polished, or the like, by the adhesive agent layers of the double-sided adhesive tape for securing the polishing material, and the like. Note that it can also be considered that this peeling is caused by the adhesive agent layers of the double-sided adhesive tape for securing the polishing material becoming swelled with the machining fluid.

EmbodimentsThe object of the present invention seekis to provide a structural member for polishing a substrate that can be used with stability over an extended period of time, provided with an adhesive agent layer that is able to maintain full adhesive strength even when soaked in the machining fluid, and that fully controls swelling with the machining fluid.

SUMMARY

An aspect of the present invention relates to a structural member for polishing having a supporting member, a polishing material, and an adhesive agent layer bonding the support member and the polishing material; wherein the adhesive agent layer includes a polymer of monomers including from 58 to 85% of a first monomer, from 2 to 7% of a second monomer, and from 10 to 40% of a third monomer; the first monomer is an alkyl (meth)acrylate having an alkyl group with carbon counts from 8 to 18 carbon atoms and provides a homopolymer with a glass transition temperature of 0°C or less; the second monomer is a polar monomer that provides a homopolymer with a glass transition temperature of 50°C or greater; and the third monomer is an alkyl (meth)acrylate having an alkyl group with carbon counts from 4 to 18 carbon atoms or an aralkyl group having carbon counts from 7 to 18 carbon atoms and provides a homopolymer with a glass transition temperature of 10°C or greater.

The adhesive agent layer in the structural member for polishing includes the polymer set forth above, and thus can maintains adequate adhesive strength even when soaked in the machining fluid, and is able to adequately control swelling with the machining fluid. Because of this, the structural member for polishing set forth above may makes it possible to prevent delamination of the polishing material and the adhesive agent layer caused by a

decrease in the adhesive strength and able to prevent peeling of the adhesive agent layer caused by swelling of the adhesive agent layer, thus enabling polishing operations to be performed with stability over extended periods of time.

In an embodiment~~another aspect~~, the glass transition temperature of the polymer can be between -25 and 10°C, between -20 and 10°C or even between -15 and 10°C. An adhesive agent layer that includes this type of polymer may be~~is~~ able to adequately prevent the adhesive agent from being pushed out the side faces of the structural member, and the like, due to the pressure that is applied at the time of polishing. Additionally, the structural member for polishing, set forth above, may have a plurality of polishing materials bonded on the adhesive agent layer, and at this time, gaps may be produced between the polishing materials. The adhesive agent layer that includes the polymer set forth above may be~~is~~ able to adequately prevent, at this time, the adhesive agent from being pushed out into the gaps between the polishing materials.

Moreover, in another embodiment~~aspect~~, the polishing material may have a base material and a polishing layer. The polishing layer may include a plurality of solid elements orderly disposed on the base material. The solid elements may include a plurality of abrasive grains and a binding agent thereof.

Additionally, in another embodiment~~aspect~~ the thickness of the adhesive agent layer may be between 50 and 500 μm.

In yet another embodiment~~aspect~~, the structural member for polishing may be provided further with a removable adhesive agent layer, provided on the other surface of the supporting member. This type of structural member for polishing can be attached to and removed from the base of the polishing device easily through the removable adhesive agent layer.

Embodiments of t~~T~~he present invention provide~~s~~ a structural member for polishing that can be used with stability over an extended period of time. The structural member is provided with an adhesive agent layer, wherein the adhesive strength may be~~is~~ maintained adequately if soaked with machining fluid and that adequately controls swelling with the machining fluid.

Unless otherwise indicated, all percentages recited herein are percent by weight.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 (a) is a perspective view and (b) is a cross-sectional diagram showing a section on the cross-sectional line I-I, of a structural member for polishing according to a first form of embodiment.