２００８年度第７回知的財産翻訳検定＜英文和訳＞
【化学分野】
※解答作成前に必ず下記の注意事項に目を通してください。
【解答にあたっての注意事項】
１．問題は3題あります。それぞれの問題の指示に従い、3題すべて解答してください。
２．問１の解答にあたっては図面とその説明を参照してください。
図は本文上部にある「課題図表の表示・非表示」ボタンをクリックすれば
閲覧できます。
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問１．次のクレーム１～４をそれぞれ日本特許明細書の請求項１～請求項４として、＜スタート＞から＜エンド＞までを翻訳しなさい。参考資料としてFIG．1、FIG．2とその説明を添付していますが、これらは翻訳対象ではありません。
＜スタート＞

1. A protected article, comprising:

a substrate ; and

a protective structure overlying a surface of the substrate, the protective structure comprising

a diffusion-aluminide protective layer overlying and contacting the surface of the substrate, the aluminum content in the protective layer being greater than the aluminum content in the substrate by at least 3 atomic percent aluminum, and

a bond-coat layer of a bond-coat-layer metal having a bond-coat initial composition comprising at least about 60 percent by weight of an element selected from the group consisting of platinum, rhodium, palladium, and combinations thereof, wherein the bond-coat layer overlies and contacts the diffusion aluminide protective layer so that the diffusion-aluminide protective layer lies between the bond-coat layer and the surface of the substrate.

2. The protected article of claim 1, wherein the protective structure further includes a yttria-stabilized zirconia ceramic thermal barrier coating overlying the bond-coat layer.

3. The protected article of claim 1, wherein the bond-coat layer has a thickness of from about 10 micrometers to about 100 micrometers.

4. The protected article of claim 1, wherein the bond-coat layer is an alloy of the bond-coat initial composition and elements interdiffused into the bond-coat layer from the substrate and from the diffusion-aluminide protective layer.

＜エンド＞
＊参考資料
FIG. 1 depicts a component article of a gas turbine engine such as a turbine blade or a turbine vane, and in this illustration a turbine blade 20. The turbine blade 20 is formed of any operable material, but is preferably a nickel-base superalloy. The turbine blade 20 includes an airfoil section 22 against which the flow of hot exhaust gas is directed. (The turbine vane has a similar appearance in respect to the pertinent airfoil section, but typically includes other end structure to support the airfoil.) The turbine blade 20 is mounted to a turbine disk (not shown) by a dovetail 24 which extends downwardly from the airfoil 22 and engages a slot on the turbine disk. A platform 26 extends longitudinally outwardly from the area where the airfoil 22 is joined to the dovetail 24. Optionally, a number of internal passages extend through the interior of the airfoil 22, ending in openings 28 in the surface of the airfoil 22. During service, a flow of cooling air is directed through the internal passages to reduce the temperature of the airfoil 22.

FIG. 2 is a sectional view through a portion of the turbine blade 20, here the airfoil section 22. The turbine blade 20 has a body that serves as a substrate 30 with a surface 32. Overlying and contacting the surface 32 is a protective structure 33 including a protective layer 34. The protective layer 34 has a greater amount of aluminum than the substrate, and preferably at least 3 atomic percent aluminum greater than the substrate. That is, the protective-layer aluminum content is preferably at least 3 atomic percent greater than the substrate aluminum content. To cite an example, if the substrate has an aluminum content of 12 atomic percent aluminum, the protective layer 34 has an aluminum content of greater than 12 atomic percent, and preferably greater than 15 atomic percent. The protective layer 34 overlies the surface of the substrate 30 and may be of any operable type. In the embodiments of FIGS. 2 and 3, the protective layer 34 contacts the surface 32 of the substrate 30.

Any of several types of protective layer 34 may be used. The protective layer 34 may be a diffusion aluminide that initially includes only aluminum and elements diffused into the protective layer 34 from the substrate 30, or may be a modified diffusion aluminide that initially includes other elements such as platinum, chromium, zirconium, silicon, and/or hafnium. In the simple diffusion aluminide, aluminum is deposited onto the surface 32 and diffused into the surface 32 and interdiffused with the elements of the substrate 30. The modified diffusion aluminide may be formed by depositing a layer of another element, such as platinum, onto the surface 32, and then depositing the aluminum layer (either pure aluminum or doped with a modifying element) overlying the layer of the other element. The layers are interdiffused with the base metal of the substrate. In these cases, the aluminum-containing protective layer 34 may contain a modifying element such as hafnium, yttrium, zirconium, chromium, or silicon, or combinations thereof. Diffusion aluminide coatings that may be used are described in U.S. Pat. No. 6,607,611, whose disclosure is incorporated by reference in its entirety.

【化学　問1】

FIG. 1

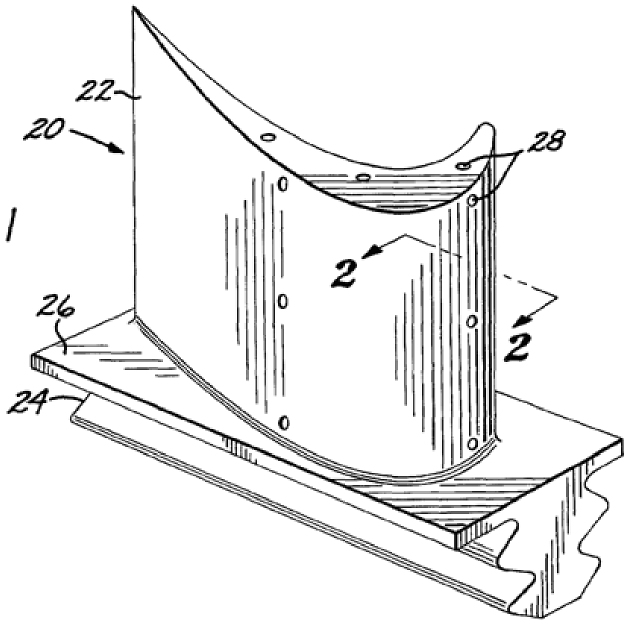
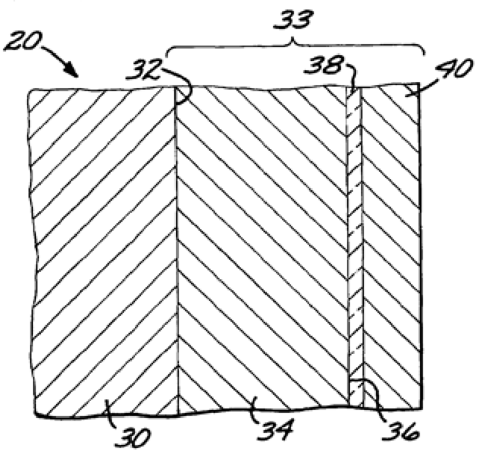


FIG. 2



問２．次の米国特許明細書中の背景技術にかかわる記載内容について翻訳しなさい。
＜スタート＞

Isoprenoids are an extremely large and diverse group of natural products that have a common biosynthetic origin, i.e., a single metabolic precursor, isopentenyl diphosphate (IPP). The group of natural products known as isoprenoids includes all substances that are derived biosynthetically from the 5-carbon compound isopentenyl diphosphate. Isoprenoid compounds are also referred to as "terpenes" or "terpenoids", which is the term used in the designation of the various classes of these examples.

Isoprenoids are ubiquitous compounds found in all living organisms. Some of the well-known examples of isoprenoids are steroids (triterpenes), carotenoids (tetraterpenes), and squalene, just to name a few.

For many years, it was accepted that IPP was synthesized through the well-known acetate/mevalonate pathway. However, recent studies have demonstrated that the mevalonate-dependent pathway does not operate in all living organisms. An alternate mevalonate-independent pathway for IPP biosynthesis was initially characterized in bacteria and later also in green algae and higher plants.

Many steps in both the mevalonate-independent and mevalonate-dependent isoprenoid pathways are known. For example, the initial steps of the alternate pathway involve the condensation of 3-carbon molecules (pyruvate and C1 aldehyde group, D-glyceraldehyde 3-phosphate), to yield the 5-carbon compound D-1-deoxyxylulose-5-phosphate. Lois et al. has reported a gene, dxs, that encodes D-1-deoxyxylulose-5-phosphate synthase (DXS) and that catalyzes the synthesis of D-1-deoxyxylulose-5-phosphate in E. coli.

＜エンド＞

問３．次の米国特許明細書中の実施例の説明にかかわる記載内容について翻訳しなさい。
＜スタート＞

The process for preparing the ink jet ink of the present invention involves grinding a dispersion of the pigment, water, water immiscible and water miscible compounds in order to comminute the particles, preferably until a bi-modal distribution of pigment particles is obtained. The creation of a microemulsion is generally achieved during this step. The term "bi-modal distribution" refers to a distribution of particles into at least two separate fractions of different average particle size. Generally, only two separate fractions or modes are observed. If more than two modes are observed, then the first mode will be considered the fraction of particles having the smaller average particle size and the second mode will encompass the remaining fractions.

The comminuting of the particles can take place in a single step, or in a two-step process. For example, the dispersion can first be milled in any generally appropriate and available mill, e.g., such as a ball mill, sand mill or media mill. Media mills which employ a horizontal media mill such as those manufactured by Netzsch, Eiger, Premier, and the like are efficient, and dispersions prepared using a horizontal media mill have been found to produce excellent colloidal dispersions which provide inks exhibiting excellent stability. A media mill can therefore be used to reduce the size of the particles to a certain level.

＜エンド＞