★★★ ＜第31回知的財産翻訳検定試験【第15回英文和訳】＞ ★★★
≪１級課題 -化学-≫

【解答にあたっての注意】
１．問題の指示により和訳してください。
２．解答語数に特に制限はありません。適切な箇所で改行してください。
３．課題文に段落番号がある場合、これを訳文に記載してください。
４．課題は４題あります。それぞれの課題の指示に従い、４題すべて解答してください。

問１．次の記述はある英語明細書からの抜粋です。＊＊＊START＊＊＊から＊＊＊END＊＊＊の間だけを和訳してください。

[0003] Multicore fiber technology for spatial multiplexing is being considered both for long haul communications and for short distance optical fiber interconnects used within data centers and high-performance computers. Connecting multicore fibers requires very precise positioning of the individual cores, with typical tolerances being a fraction of a micrometer. This key requirement dictates the choice of materials and processes when forming the optical fiber preform.

[0004] Single-core and multi-core fibers can be fabricated from a glass preform made using what is referred to in the art as an all-glass process. The all-glass process utilizes a bulk cladding glass with one or more precision-formed axial holes sized to accommodate respective one or more canes that define the core(s) of the preform and thus the optical fiber formed from the glass preform.

[0005] An all-glass process may be preferred over deposition-based processes (e.g., an outside vapor deposition (OVD) process) involving soot layering, soot pressing and soot drilling, sintering, and consolidation to convert the soot to glass. The ability to precision grind the outer surface of the cladding glass to a select diameter and to perform precision drilling of the cladding glass provides both the precision and flexibility of choosing a variety of spacings, shapes, and arrangements of the one or more axial holes when forming the glass preform.

＊＊＊START＊＊＊

[0006] Unfortunately, the all-glass process is relatively expensive and time consuming. The precision hole drilling takes time, the one or more canes need to be formed to define a select refractive index profile and then added to the cladding glass, and the entire structure needs to be consolidated in a furnace to form the solid glass preform. To make the glass preform of sufficient length, it may be necessary to axially combine separate glass cladding sections, which involves precise alignment of the axial holes. The consolidation process typically requires a special support fixture to hold the glass claddings sections and canes in a consolidation furnace and then removing the resulting solid glass preform from the furnace, unloading it from the support fixture and then operably supporting it at the draw furnace of the draw system to make the optical fiber.

＊＊＊END＊＊＊

問２．次の記述はある英語明細書からの抜粋です。この記述のうち、***START***と***END***との間の部分（１か所）を和訳してください。

START

Any ingredient, which does not interfere with the crosslinking action or does not adversely affect propellant stability, may be used in crosslinked modified double base propellants. A metal powder, such as aluminum, is used as a fuel to obtain a high theoretical specific impulse. A liquid fuel, such as carboranylmethyl acrylate, has also been incorporated. A solid oxidizer such as ammonium perchlorate should also be present in the propellant to obtain acceptable delivered impulses. Nitroguanidine, cyclotetramethylene tetranitramine (HMX) and cyclotrimethylene trinitramine were also successfully incorporated as oxidizers into the crosslinked solution or slurry cast propellants. 2-Nitrodiphenylamine and resorcinol are usually used as stabilizers in modified double base propeilants. That amine or ethyl

Centralite (symmetrical diethyldiphenylurea) can be used in crosslinked versions but resorcinol does react with the diisocyanate. Resorcinol diacetate does not react with a diisocyanate and has been used as the second stabilizer. The choice of a plasticizer, which is composed of explosive (an organic nitrate) and non-explosive (an ester, ketone, nitrile or nitro compound) components, is likewise only limited bv consideration of reactivity and compatibility and the additional consideration of volatibility. In addition to nitroglycerin, other organic nitrates such as diethvlene glycol nitrate, triethylene glycol dinitrate and metriol (tri-methylol methane) trinitrate have been successfully used in crosslinked pro pellants.

END

Esters such as triacetin (glycerol triacetate), diallyl phthalate, di-n-propyl adipate and dimethyl sebacate and nitriles such as adiponitrile have been used and a ketone such as isophorone (3,5,5-trimethyl-2-cyclo- hexen-1-one) or a nitro compound such as o-chloronitrobenzene or dinitrotoluene can be used.

問３．次の記述はある英語明細書からの抜粋です。全文を和訳してください。

A 20 mL vial was charged with cyclopropanesulfonamide (2.09 mmol), Cs_2CO_3 (3.49 mmol), 1-tert-butyl 3-methyl 2-(2-chloropyrimidin-4-yl)malonate (1.74 mmol) and dioxane (2 mL). The mixture was degassed and backfilled with N2 for 5 mins. In a separate 20 mL vial, the above prepared catalyst (0.174 mmol) and dioxane (1 mL) were stirred under N_2 for 5 mins then added to the first vial. The resulting reaction mixture was heated under N_2 at 60 °C for 2.5 hrs. The mixture was allowed to cool to RT, diluted with H_2O (2 mL) and then carefully acidified with 1M HCl (aq, 5 mL) until pH 4. The residue was extracted with EtOAc (2 x 20 mL), the organic phase was filtered through a phase separator and the solvent was removed in vacuo. The yellow residue was triturated with TBME (10 mL), filtered and washed with TBME (10 mL) to give 1-tert-butyl 3-methyl 2-(2-(cyclopropanesulfonamido)pyrimidin-4-yl)malonate (0.394 g,

1.05 mmol, 60% yield) as a white solid.

問４．次の記述はある英語明細書の CLAIMS からの抜粋です。***START***と***END***との間の部分（1 か所）を和訳してください。

START

13. A method of preparing a hollow particle, the method comprising:

mixing and homogenizing a water-containing continuous phase fluid and a water-immiscible liquid-containing dispersed phase fluid; and

sequentially adding a polyphenolic compound and a divalent iron ion while bringing the polyphenolic compound and the divalent iron ion in contact with an oxidant to form a coacervate on an interface formed by stirring the two fluids that are immiscible with each other.

14. The method of claim 13, wherein the homogenizing is performed by further adding one or a mixture of two or more selected from the group consisting of fatty acid and phospholipid.

15. The method of claim 13, wherein the homogenizing is performed by further adding a pro-oxidant.

16. A hollow particle, comprising:

a core containing a water-immiscible liquid; and

a shell formed on the core and containing a complex in which a polyphenolic compound and a ferric ion are chelated,

wherein a shell thickness of the hollow particle is 1/1,000 to 1/50 based on an average diameter of the hollow particles.

END