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NEWS RELEASE

New iconos™ Line of Minor Metal Solution Materials Developed

The new materials will have a major impact on the inorganic material market

Mitsui Mining & Smelting Co., Ltd. (President: NOU Takeshi; hereinafter, “Mitsui Kinzoku”) announces that its Engineered Powders Division has developed iconos™, a new line of minor metal solution materials containing tantalum (Ta), niobium (Nb) and other elements.

Minor metals are indispensable materials in our everyday lives, as they are used in many different fields and industries, included in products such as smartphones, automobiles, batteries and semiconductor devices. Characteristically, minor metals including Ta and Nb are not very soluble (they have poor solubility). They are hard to handle because they are only soluble in strong acid. This is why minor metals mainly handled in a powder form.

Mitsui Kinzoku developed this line of solution materials after having successfully turned Ta and Nb compounds into solutions without using a strong acid, overcoming the issue of poor solubility using its original dissolving technology.

The new iconos™ line of solution materials was named in the hope that the new materials would overturning the commonly accepted wisdom that came before their creation. Our product lineup is as follows.

The iconos™ lineup: Tantalum (Ta), niobium (Nb), hafnium (Hf), titanium (Ti), zirconium (Zr), molybdenum (Mo) and tungsten (W)

*Ta, Nb, Mo, and W can be mixed with lithium (Li) in the preparation of the solution.

Because of their liquid form, iconos™ products are easy to handle, for example, when mixing or applying them. Another advantage of iconos™ products is their very high reactivity. This enables users to shorten their working and manufacturing processes and reduce energy usage. For example, applying iconos™ products to the

surface of base material or particle facilitates film formation without the use of halogen. In addition, using iconos™ products together with the sol-gel method (a material synthesis method), a complex compound can be synthesized just by mixing the materials. The complex compound can be a substitute for metal alkoxide, a raw material. Additionally, the prepared solutions can be stored for a long term (six months or longer) because of their high stability.

Mitsui Kinzoku is considering many different ideas for applications and ways to offer iconos™ products leveraging the characteristics of the product line. Mitsui Kinzoku believes that they are unprecedented functional materials, and it will contribute to the development of new applications that were not possible with powder-form materials and that can reduce environmental burdens by enabling customers to save energy and reduce process time.

Mitsui Kinzoku will contribute to the realization of a sustainable society by implementing our its vision for 2030, “Building new businesses — and the future — with our material intelligence,” based on its purpose, “We promote the well-being of the world through a spirit of exploration and diverse technologies.”



The new iconos™ line of solution materials (on the right is a sheet of glass coated with an iconos™ product)

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