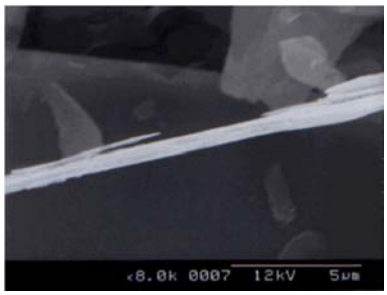
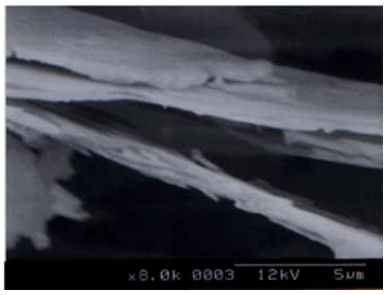
【Technical Data】	YAMAGUCHI MICA CO., LTD.				
Title	Physical properties of PBT resin mixed with YAMAGUCHI's wet-ground Mica - To enhance the plastic rigidity -				
Category	Plastics	Written by	H. Yamaguchi	Date	Oct. 31, 2018

<Abstract> Hereinafter, YAMAGUCHI MICA CO., LTD. is represented as YMC.
YMC wet-ground mica has excellent particle shape with surface smoothness and high aspect ratio.
For evaluating the physical properties of resin, YMC wet-ground mica was mixed with PBT as filler material. As a result, YMC wet-ground mica obtained high flexural modulus and impact strength. We found that YMC wet-ground mica was effective to enhance the plastic rigidity.

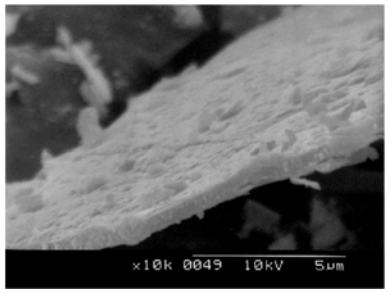
<Implementations>
In comparison of the SEM photos below, YMC wet-ground mica is excellent in surface smoothness and has high aspect ratio. We mixed various types of micas with PBT and compared resin physical properties to check the effectiveness of plastic rigidity level.



(a)YMC wet-grinding



(b) Wet ball-milling



(c) Dry jet-milling

<Results>
Resin: PBT, Filler: Mica/GF=25(wt%)/15(wt%)

Grinding Method	Mining area	Mica type	Average Particle size (μm)	Flexural Modules (GPa)	Flexural strength (MPa)	Charpy Impact strength (kj/㎡)	Heat deflection Temperature (℃)
YMC Wet	India	Muscovite	35	**12.2**	**183**	**6.0**	**208**
Others Wet	China	Muscovite	30	10.6	176	5.4	204
Others Dry	China	Muscovite	25	9.0	158	4.7	202
Others Dry	USA	Phlogopite	45	10.9	149	4.4	205

YMC: Our product, Others: Competitor's products

<Conclusions>
YMC wet-ground mica had high flexural modulus and impact strength. We found that the excellent shape of YMC wet-ground mica with surface smoothness and high aspect ratio was effective to enhance the plastic rigidity.