

Hitachi Ionic liquid HILEM[®] for Easy Sample Preparation

Features of sample prep. technique with ionic liquid (IL)

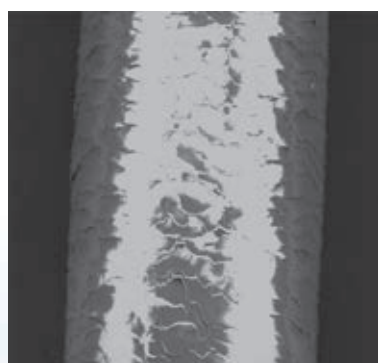
- Latest sample preparation technique by ionic liquid which is an organic salt in a liquid state at ambient temperature has low vapor pressure
- Useful for observation of non/less-conductive samples by proving conductive material
- Preservation technique of “hydrated” state morphology without dehydration and drying
- Well dispersant technique for (S)TEM imaging



HILEM[®]



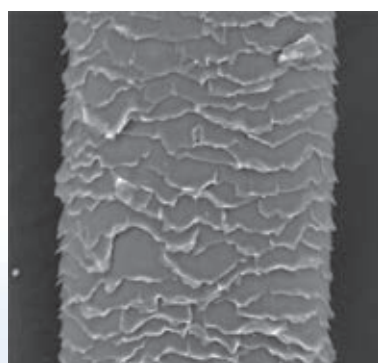
Application as an antistatic agent



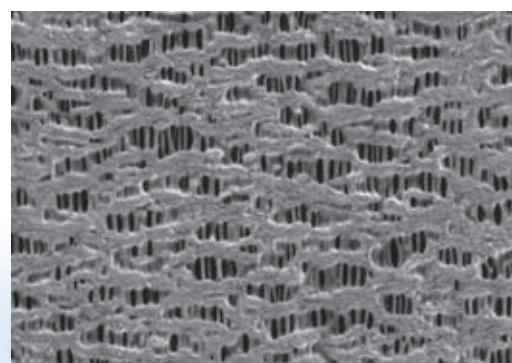
Without IL 20 μm

Hair

Instrument : TM3030, Acc. Vol. : 5 kV (left), 15 kV (right)
Mag. : x 1 k, Sample prep. : 20% Hydrophilic IL treatment



With hydrophilic IL 20 μm



1 μm

Separator

Instrument : Regulus, Landing Vol. : 100 V, Mag. : x 30 k,
Sample prep. : 1% Hydrophobic IL treatment

Application in biological sample preparation

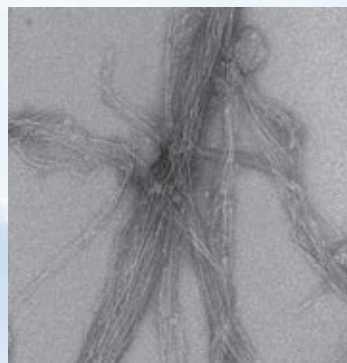


10 μm

Micro-algae (*Pandorina morum*)

Instrument : SU5000, Acc. Vol. : 2 kV, Mag. : x5 k,
Signal : SE, Sample prep. : Glutaraldehyde fixation and
5% Hydrophilic IL treatment Specimen courtesy by
Noriko Ueki and Ken-ichi Wakabayashi,
Chemical Resources Laboratory, Tokyo Institute of Technology

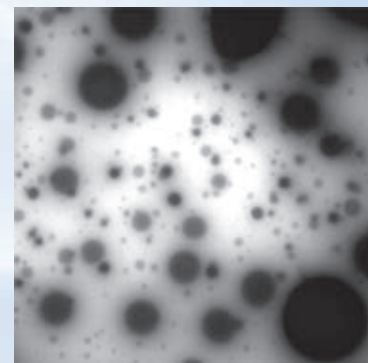
Application as a specimen dispersant



100 nm

Cellulose nano-fiber

Instrument : HT7700,
Acc. Vol. : 120 kV, Mag. : x40 k,
Sample prep. : 10% Hydrophilic IL treatment with
3% ammonium molybdate staining



5 μm

Water repellent spray

Instrument : HT7700,
Acc. Vol. : 120 kV, Mag. : x1 k,
Sample prep. : 5% Hydrophobic IL treatment