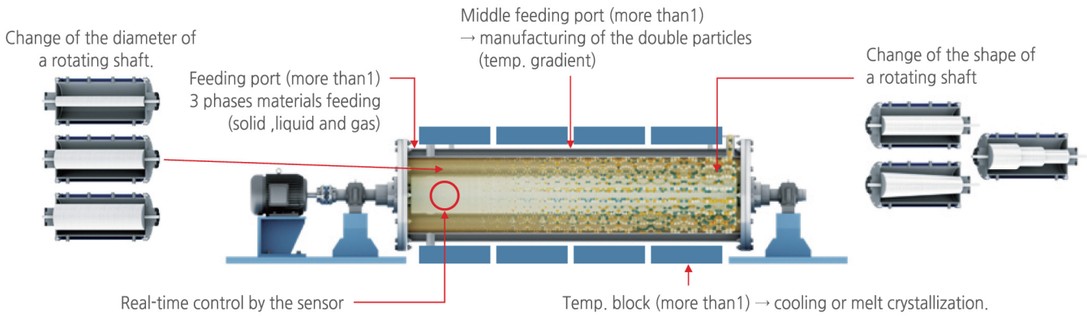
LCTR® series



Option

Slurry feeding pump

Max 600 rpm

Max 8 bar

Solution feeding pump (for production)

Max 200 L/min

Max 16 bar

Materials : PTFE

Electronic scale
(for confirming the feeding quantity)

Alternative to a flow-meter

0.01 ~ 10 kg

0.001 ~ 1 kg

Bath circulator

Controlling reaction temp.

-25 ~ 150 ℃

Laminar

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Productivity improvement and the control of explosive reaction

Manufacturing equipment of Graphene Oxide

Laminar

LCTR®-tera 3100

Characteristics of LCTR®-tera3100

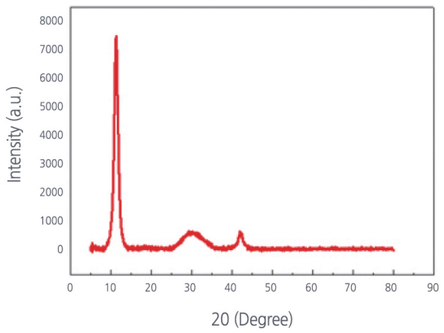
· Just max. one hour needs to manufacture Graphene oxide instead of 5 days required from the conventional Hummers method, due to highly improvement of intercalation speed between layers by strong forced Taylor fluid flow.
· Controlling explosive reaction in safety
· Working at Room temperature for production
· Continuous Graphene Oxide manufacturing system

Specification of LCTR®-tera3100

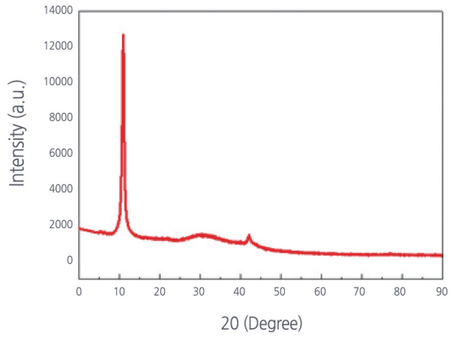
Working volume (L)	1
Reaction temp. (°C)	Max 40
Rotation speed (rpm)	Max 1500
Material	Hastelloy-C, Teflone
Dimension L/W/H (mm)	1470 * 700 * 1150
Weight (kg)	500

XRD data

Batch type (Hummers method)



Laminar's technology



Batch type (Hummers method)

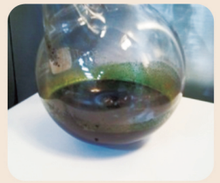
5 days (R.T.) or 18 hrs. (35℃)

Laminar's technology

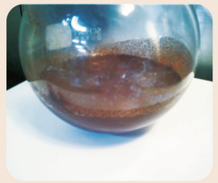
under 1 hrs. (R.T.)

Hummers method - batch type process

Graphite + $KMnO_4$ + $NaNO_3$ + H_2SO_4

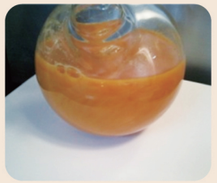


After 2 hours



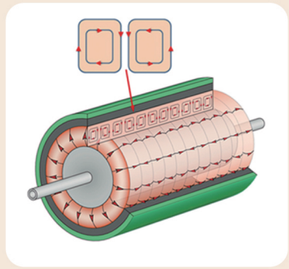
After 5 days

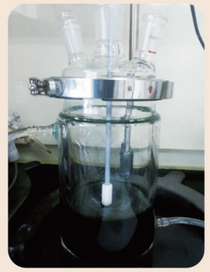
5 wt% H_2SO_4 addition



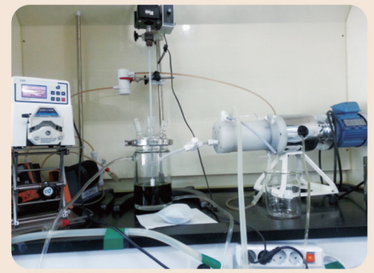
H_2O_2 addition

Taylor flow method - continuous process





Graphite + $KMnO_4$ + $NaNO_3$ + H_2SO_4



After 1 hours

H_2O_2 addition