36529

Graphene Platelet Nanopowder (GPN Type 2), 11-15 nmnm, 99.5%

Part C

CAS : 7782-42-5

Molecular Formula : C

Molecular Weight : 12.01

Specifications

Appearance (Colour)	Black
Appearance (Form)	Granules
Carbon (C)	min. 99.5%
APS	15 micron
Thickness	11-15 nm
Surface area	50-80 g/m2
Bulk density	0.03 to 0.1 g/cc
Oxygen content	max.1%

Other Information

Graphene platelets dispersion guidelines for 36529 - Graphene Platelet Nanopowder (GPN Type 2)

Dispersion into Non-Aqueous Solvents:

Organic solvents are very effective in obtaining a good dispersion but, in most cases, are not practical for our customer to use. Much of the early development work with 36529 in thermoplastic resins was done by dispersing the platelets in an aromatic solvent, dissolving the polymer in the same solvent, mixing the two solutions and then evaporating the solvent to obtain the thermoplastic with an excellent dispersion of platelets.

Isopropanol (IPA) is a fairly good solvent which is inexpensive and easy to use, but may not be as effective as some stronger solvents. Some very effect solvents include N-Methylpyrrolidone (NMP), Dimethylformamide (DMF), Tetrahydrofuran (THF), and Chloroform. However, these are very strong and toxic materials and should be handled with great care by experienced personnel. In any case, if solvents are used to aid dispersion into a polymer system, care should be taken to make sure that the solvent is removed prior to further processing.

Dispersion into Aqueous Systems:

36529 Graphene Platelet Nanopowder (GPN Type 2) is hydrophobic and will not disperse in water without a dispersion aid. Three dispersion aids that we have proven to be useful are:

- Sodium dodecylbenzene sulfonate - (SDBS) - (solid)
-Linear or branched poly(ethyleneimine) - ((PEI) - (50% H2O solution)
-Poly(sodium styrene sulfonate) - (PSS) - (~70k Mw, 30% H2O solution)

Two methods have been used:
1. Add dispersant to water at 1-2% level and then add 36529 with the use of an ultrasonic mixer. The rate of 36529 addition to the liquid is critical. It should be added with continuous mixing, at a rate so that the 36529 does not coalesce on or in the liquid. A continuous feeding system (screw or vibratory) will be helpful. The addition rate may need to be adjusted during addition since the receiving liquid may change viscosity during this operation due to concentration and temperature changes. Careful 36529 addition should result in a stable suspension. Experimentation with the amount of dispersant will be necessary to determine the optimum level for your system.

2. Continue to sonicate the suspension from step for a few minutes or longer. Filter and wash the coated platelets. Now re-disperse the coated 36529 in the desired amount of water to obtain a stable suspension.

In addition to the above solvents, a mixture of 15 wt% IPA to 85 wt% water should result in a carrier solution into which our nanoplatelets can be dispersed with the aid of sonication. Normally, particles that settle out of a solution can be redispersed with the

Notes

General Information

Storage	25 to 40°C (Room Temperature)
Shelf Life	60 Months
IMDG Identification	Not Regulated for Transport (Non-Haz)
HSN Code	
1 Gms	25049090 (GST 5%)
5 Gms	25049090 (GST 5%)

Available Packages

1 Gms
5 Gms

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