	सीमाशुल्क अग्रिम विनिर्णय प्राधिकरण **Customs Authority for Advance Rulings** **नवीन सीमाशुल्क भवन, बेलार्ड इस्टेट, मुंबई - ४०० ००१** **New Custom House, Ballard Estate, Mumbai - 400 001** **E-MAIL: cus-advrulings.mum@gov.in**	आज़ादी का अमृत महोत्सव

F.No. CAAR/CUS/APPL/1/2025-26 - O/o Commr-CAAR-Mumbai दिनांक/Date : 06.08.2025

Ruling No. & date	CAAR/Mum/ARC/59/2025-26 dated 06.08.2025
Issued by	Shri Prabhat K. Rameshwaram, Customs Authority for Advance Rulings, Mumbai
Name and address of the applicant	M/s Carborundum Universal Limited, Plot No. 18, Cochin Special Economic Zone, Kakkanad, Ernakulam, Kerla Email: vishnuprasadk@cumi.murugappa.com
Concerned Commissionerate	The Commissioner of Customs, Cochin, Custom House, Willingdon Island, Cochin-682009 Email : cochincustoms@nic.in

ध्यान दीजिए/ N.B.:

1. सीमा शुल्क अधिनियम, 1962 की धारा 28I की उप-धारा (2) के तहत किए गए इस आदेश की एक प्रति संबंधित को निःशुल्क प्रदान की जाती है।
   A copy of this order made under sub-section (2) of Section 28-I of the Customs Act, 1962 is granted to the concerned free of charge.

2. इस अग्रिम विनिर्णय आदेश के खिलाफ कोई भी अपील ऐसे निर्णय या आदेश के संचार की तारीख से 60 दिनों के भीतर संबंधित क्षेत्राधिकार उच्च न्यायालय के समक्ष की जाएगी।
   Any appeal against this Advance Ruling order shall lie before the jurisdictional **High Court of concerned jurisdiction**, within 60 days from the date of the communication of such ruling or order.

3. धारा 28-I के तहत प्राधिकरण द्वारा सुनाया गया अग्रिम विनिर्णय तीन साल तक या कानून या तथ्यों में बदलाव होने तक, जिसके आधार पर अग्रिम विनिर्णय सुनाया गया है, वैध रहेगा, जो भी पहले हो।
   The advance ruling pronounced by the Authority under Section 28 - I shall remain valid for three years or till there is a change in law or facts on the basis of which the advance ruling has been pronounced, whichever is earlier.

4. जहां प्राधिकरण को पता चलता है कि आवेदक द्वारा अग्रिम विनिर्णय धोखाधड़ी या तथ्यों की गलत बयानी द्वारा प्राप्त किया गया था, उसे शुरू से ही अमान्य घोषित कर दिया जाएगा।
   Where the Authority finds that the advance ruling was obtained by the applicant by fraud or misrepresentation of facts, the same shall be declared void *ab initio*.

अग्रिम विनिर्णय / Advance Ruling

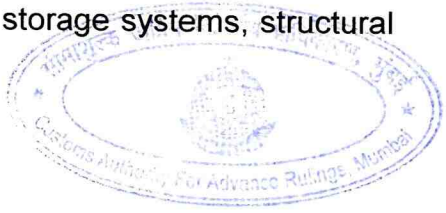
M/s. Carborundum Universal Limited (IEC No.: 0488033471) (hereinafter referred to as 'the Applicant') filed an application (CAAR-1) for advance ruling in the Office of Secretary, Customs Authority for Advance Ruling (CAAR) Mumbai. The said application was received in the secretariat of the CAAR, Mumbai on 02.01.2025 along with its enclosures in terms of Section 28H of the Customs Act, 1962(hereinafter referred to as the 'Act also'). Further, vide letter dated 16.07.2025, the applicant clarified that they are seeking an advance ruling on the issue concerning the classification of graphene when cleared as a composite material along with a carrier, i.e., graphene impregnated in a carrier medium such as a masterbatch or solvent is correctly classifiable under HSN 38019000 or otherwise, considering the provisions of Rule 3(b) of the General Rules for Interpretation.

2. Applicant's Submissions:

2.1 The applicant, Carborundum Universal Limited (CUMI), a company duly incorporated under the Companies Act, 2013, with its registered office located at 43, Parry House, Chennai, submitted that it operates one of its key manufacturing units at Plot No. 18, Cochin Special Economic Zone (CSEZ), Kakkanad, Ernakulam, Kerala. The company is engaged in the manufacture, procurement, and sale of a wide portfolio of products, including abrasives, refractory materials, ceramics, and fused and sintered materials, with operations both in India and abroad. Under its Electro Minerals Division, CUMI manufactures and sells aluminium oxide, silicon carbide, zirconium oxide grains, and high-purity fine powders such as graphite, graphene, and silicon carbide, which find applications across various sectors including abrasives, refractories, metal matrix composites, automotive components, and other advanced materials.

2.2 It was further submitted that CUMI has made a significant long-term strategic investment in establishing a dedicated 12,000 sq. ft. graphene manufacturing facility within the CSEZ premises, which is duly approved under authorized operations by the Development Commissioner, CSEZ. This facility is the first of its kind in Kerala and is aligned with the company's objective of entering into futuristic technologies and advanced material domains. The graphene is produced from synthetic or natural graphite—sourced primarily from Bogala Graphite, Sri Lanka—using a top-down chemical exfoliation process that converts multilayered graphite into fewer-layered graphene structures. The applicant submitted a detailed list of products along with their corresponding HSN codes, as approved by the Development Commissioner, Cochin Special Economic Zone (CSEZ), Kakkanad, Ernakulam, Kerala. Further, the applicant in his submissions stated that the graphene produced at the said SEZ unit is cleared either for export or to the Domestic Tariff Area (DTA), in two distinct forms—namely, as pure graphene or as a composite material wherein graphene is impregnated into a carrier substance such as a masterbatch or solvent, to render it suitable for end-use applications by customers.

2.3 The graphene produced exhibits superior mechanical strength, thermal and electrical conductivity, barrier and antibacterial properties, and is suitable for a wide range of high-performance applications including energy storage systems, structural



composites, aerospace, biomedicine, coatings, sensors, paints, packaging, and sustainable materials. However, due to its ultra-light weight, high surface area, low density, and nanomaterial nature, graphene in its pure form is difficult to handle and incorporate directly into customer manufacturing processes. Therefore, in order to make the material usable and commercially viable for downstream industries, CUMI incorporates graphene into various carrier media such as rubber, plastic, resin, solvents, paints, varnishes, waxes, lubricants, and concrete admixtures.

2.4 The applicant stated that the incorporation process is entirely undertaken in-house and that no outsourcing or job work is involved. The carrier media used in the process are either supplied by the customer or independently procured by the company, and serve as facilitators for the effective use of graphene by end-users. Graphene does not chemically alter or react with these carrier materials; rather, it significantly enhances their inherent characteristics without modifying their chemical identity.

2.5 It was further clarified that the graphene-based products are cleared either in pure form or in the form of masterbatches, dispersions, composites, or solutions, depending on customer requirements. The graphene concentration in these composite products typically ranges from 0.02% to 40%, and the final formulations are often diluted by customers by a factor of 20 to 50 during actual usage, resulting in graphene concentrations in the final product as low as 0.02% to 0.5%. Despite this low concentration, the graphene imparts substantial improvement to the end-use properties of the products.

2.6 To illustrate the value and effect of graphene addition, the applicant submitted an example related to rubber manufacturing. In this case, 1 kg of rubber (costing approximately ₹250/kg) is mixed with 200 grams of graphene (costing around ₹25,000/kg) to produce a masterbatch priced at ₹5,250/kg. This masterbatch, when diluted 20 times at the customer's end, results in a graphene-impregnated rubber product with a cost of ₹462.5/kg (₹262.5 for the diluted masterbatch + ₹200 for the rubber), but with significantly enhanced performance characteristics as compared to conventional rubber.

2.7 The applicant submitted that its current practice is to classify pure graphene (100%) under CTH 25041090, while composite products—where graphene is impregnated in a carrier medium such as rubber, plastic, resin, solvent, etc.—are classified under CTH 38019000. These goods are cleared either to the Domestic Tariff Area (DTA), where the DTA buyer is considered the importer under SEZ Rules and pays the applicable Customs duties and IGST, or exported.

2.8 However, the customs authorities at CSEZ have questioned the correctness of the classification of graphene composites under CTH 38019000, referring to Rule 3(b) of the General Rules for the Interpretation of the Tariff (GIR), which mandates that in the case of composite goods, classification should be based on the component imparting the essential character. The authorities observed that Chapter 25 only covers crude minerals and products subjected to minimal processing, whereas Chapter 38 includes preparations based on graphite and other carbon forms such as dispersions and pastes.

2.9 In this context, the applicant reiterated that the carrier materials—though present in greater volume and weight—serve purely as vehicles for enabling the use of graphene, which imparts significant enhancement to the final product. The company maintained that the graphene, despite its lower proportion, substantially transforms the performance attributes of the end material. Nonetheless, it accepted that the carrier retains its structural and functional identity.

2.10 The applicant emphasized that Rule 3(b) requires a determination of essential character, not merely based on value, but on the component that defines the core functionality of the composite good. While graphene significantly improves product performance, it does not change the identity of the base material. Accordingly, the applicant submitted that its current classification—pure graphene under CTH 25041090, and graphene composites under CTH 38019000—is in line with both the technical nature of the goods and the interpretative rules under the Customs Tariff.

2.11 To aid in the determination, the applicant has submitted detailed data on the composition of the products in terms of volume and value It also confirmed that these graphene-infused products are manufactured at the SEZ unit approved under the Letter of Approval (LOA) issued by the Development Commissioner, CSEZ, which covers manufacture and supply of graphene powders, dispersions, composites, and mixtures under the appropriate HSN codes.

2.12 In view of the differing interpretations by the jurisdictional customs authorities and the potential classification implications under Rule 3(b) of the GIR, the applicant has sought an advance ruling under Section 28H of the Customs Act, 1962. The specific query is whether graphene, when cleared as a composite material impregnated into a carrier medium such as a masterbatch or solvent is correctly classifiable under HSN 38019000 or otherwise, considering the provisions of Rule 3(b) of the General Rules for Interpretation.

3. Comments by the Jurisdictional Commissionerate

3.1 The jurisdictional Commissionerate, in response to the reference from the Customs Authority for Advance Rulings, conveyed that M/s. Carborundum Universal Limited, a unit in Cochin Special Economic Zone, Kakkanad, Cochin, imports Graphite under CTH 25041090 and exports Graphene in powder form under CTH 38019000. Additionally, the unit undertakes DTA sales of Graphene in various forms, such as powder, aqueous dispersions, and composite formulations with carriers like plastics, rubber, paint solvents, polishing wax, and lubricating oils.

3.2 It was reported that the applicant manufactures Graphene by chemically exfoliating synthetic or natural Graphite, resulting in multilayer Graphene with enhanced mechanical, thermal, electrical, barrier, and antibacterial properties. As direct use of Graphene is impractical due to its unique physical characteristics (e.g., ultra-light weight, high surface area, and low density), the applicant incorporates Graphene into suitable carriers to address specific industrial applications.

3.3 The Commissionerate observed that the masterbatch or product usually contains Graphene at concentrations ranging from 0.02% to 40%, which, when diluted

further by end-users, results in final products containing Graphene in the range of 0.02% to 0.5%. It was emphasized that even such small quantities of Graphene significantly enhance product performance.

3.4 It was also pointed out that the applicant sought classification of:

i. Pure Graphene powder (100% purity) under CTH 25041090; and
ii. Composite products containing Graphene (0.02% to 40%) under CTH 38019000, citing that classification based on value consideration supports Graphene classification.

3.5 The Commissionerate, however, disagreed with the applicant's reliance on Rule 3(b) of the General Rules for Interpretation, clarifying that Rule 3(b) does not recognize the "value" of a component as a classification criterion. Instead, classification must be determined based on the component imparting the essential character of the goods.

3.6 It was opined that, as per Chapter Note 1 to Chapter 25, that Chapter covers only products in crude form or those processed by limited physical means (such as washing, crushing, screening, or similar processes), but excludes products subjected to further manufacturing. Given that Graphene is a manufactured product and not in a crude state, it does not fall under Chapter 25.

3.7 Accordingly, the Commissionerate concluded that Graphene powder, Graphene dispersions, and composite formulations (e.g., Graphene with plastics, rubber, solvents, wax, or oils) are appropriately classifiable under CTH 38011000 or CTH 38019000 in line with Rule 3(b) of the General Rules for Interpretation.

4. Details of Hearing

A hearing was conducted on 23.06.2025 and 07.07.2025 at 11.30 AM. Shri Vinod Kumar CN and Dr. Japen, the authorized representatives from the applicant's side appeared online for Personal hearing. They submitted that they are importing natural graphite and manufacturing Graphene from it. The final product Graphene is used in increasing the strength of the materials, making composite materials, paint, abrasive varnish, battery, rubber, plastic and so on. That graphene is in powdery form and in some cases it is either impregnated into the product in the master batch or dissolved in a solution. When it is dissolved in the solution, content of graphene may vary about 0.02% to 0.5%. That even when a smaller quantity of graphene may cost significantly in comparision of final finished products; to say one rubber sheet of 1 kg contains 200 gms of graphene but price of rubber sheet may cost Rs. 250/- per Kg whereas the graphene value may go about Rs. 25,000/- per kg. It was specifically asked to provide the details of the ingredients in the final products both in the terms of value and weight regarding all the 37 products, they sought one week time, which was granted.

Nobody appeared from the department to represent the case.

DISCUSSION AND FINDINGS

5.1 I have taken into consideration all the materials placed before me in respect of the subject goods including all the submissions made by the applicant during the personal hearing. Accordingly, I proceed to pronounce a ruling on the basis of information available on record as well as existing legal framework having bearing on the classification of the goods in question under the first schedule of the Customs Tariff Act, 1975, its corresponding Chapter notes, supplementary notes and relevant HSN explanatory notes. As per the submission dated 16.07.2025 by the applicant, it is understood that the matter pertains to the classification of graphene when cleared as a composite material along with a carrier, i.e., graphene impregnated in a carrier medium such as a masterbatch or solvent. This issue is squarely covered under Section 28H(2)(a) of the Customs Act, 1962 as it relates to classification of goods under the provisions of this Act.

5.2. To determine the correct classification of the proposed goods, it is important to first identify the specific nature of the products. Upon a meticulous and comprehensive examination of the submissions and technical documentation furnished by the applicant, it emerges that the applicant is engaged in the manufacture and export of a wide range of engineered materials, including abrasives, ceramics, electro-minerals, and advanced composites. Its Electro Minerals Division focuses on the production of fused and sintered materials such as aluminium oxide, silicon carbide, zirconium oxide, fine powders like graphite, high-purity silicon carbide, and graphene, which find applications in refractories, composites, abrasives, and specialized industrial sectors. Graphene manufactured by the unit is cleared either to the Domestic Tariff Area (DTA) or exported to foreign buyers. The carrier materials are procured externally, while the entire preparation—including dispersion and impregnation of graphene into the carrier—is carried out in-house within the SEZ premises. Graphene, in these formulations, serves exclusively as a performance enhancer, without chemically reacting with or altering the identity of the carrier medium. Graphene is produced using a top-down chemical exfoliation method, wherein multilayer graphite (sourced primarily from Sri Lanka) is converted into few-layer graphene. This material exhibits superior thermal, electrical, barrier, antibacterial, and mechanical reinforcement properties. Due to its nano-scale dimensions, low bulk density, and ultra-light weight, graphene in pure form is generally unsuitable for direct use by downstream industries. Accordingly, the applicant disperses it into appropriate carriers to enable safe handling, dosing, and application by its customers. Depending on customer specifications, the graphene content in the final product may vary from 0.02% to 40%. The selection of carrier and the concentration of graphene are tailored to suit the intended industrial application. the carrier material constitutes a greater proportion by volume or weight, its role is limited to serving as a medium for the safe handling and effective application of graphene. Although the incorporation of graphene imparts significant functional attributes—such as enhanced mechanical strength, increased electrical conductivity, and superior barrier properties—its presence does not alter the essential character of the final product. The graphene remains in its original chemical form within the composite and does not undergo any transformation that would modify the intrinsic identity, structure, or chemical composition of the base or carrier material. Consequently, the final product retains the fundamental characteristics of the carrier medium, and the mere addition of graphene does not result in the emergence of a new substance or a distinct product in terms of its essential nature.

5.3 Further, the Jurisdictional Commissionerate noted that the applicant manufactures multilayer Graphene by chemically exfoliating Graphite and incorporates it into carriers to suit specific industrial applications due to its impracticality for direct use. The Commissionerate observed that while the applicant has sought classification of pure Graphene under CTH 25041090 and composites under CTH 38019000 citing value-based considerations, it disagrees with this reliance on Rule 3(b), clarifying that classification should be based on essential character rather than value. It further opined that Chapter 25 excludes manufactured products like Graphene, which is not in crude form. Consequently, the Commissionerate concluded that Graphene powder, dispersions, and carrier-based composites are classifiable under CTH 38011000 or CTH 38019000 in accordance with Rule 3(b) of the General Interpretative Rules.

5.4 Upon a comprehensive examination of the technical submissions, supporting documentation, and product range manufactured by the applicant under the brand "CUMI Grafino®," it is observed that the applicant produces a diverse array of graphene-based materials including but not limited to masterbatches, dispersions, pastes, coatings, adhesives, lubricants, admixtures, and treated substrates. These products are formulated by incorporating in-house manufactured graphene (via chemical exfoliation) into various carrier media such as plastics, rubbers, resins, solvents, and other polymeric or chemical bases. On analyzing the nature and function of these products, it is evident that the carrier medium constitutes the predominant component in terms of volume, weight, commercial function, and intended industrial application. Graphene is uniformly described as a functional additive that enhances specific properties such as tensile strength, electrical or thermal conductivity, barrier performance, and UV resistance, without undergoing any chemical transformation or modifying the intrinsic identity of the carrier material. The graphene remains chemically intact and does not alter the essential structure or purpose of the matrix into which it is incorporated.

5.5 Rule 3(b) of the General Rules for Interpretation of the First Schedule to the Customs Tariff Act, 1975, which governs the classification of composite goods states that:

"Composite goods consisting of different materials or made up of different components... shall be classified as if they consisted of the material or component which gives them their essential character."

The term "essential character," though not statutorily defined, has been elaborated in the Harmonized System Explanatory Notes to Rule 3(b), which guide that determination may depend on the nature of the material or component, its bulk, quantity, weight, value, or the role played in relation to the use of the goods.

5.6 In the present case, the carrier medium not only dominates quantitatively but also confers the functional utility, commercial identity, and end-use applicability of the product. The graphene acts as a property enhancer but not as the defining or governing component of the preparation.

5.7 This interpretation finds strong support in a series of authoritative judicial precedents. In *CCE v. Wockhardt Life Sciences Ltd.*, 2012 (277) ELT 299 (SC), the Hon'ble Supreme Court held that classification must be determined by identifying the component that imparts the essential character to the product. The Court emphasized that where a product comprises multiple components, the defining attribute or principal function must be ascertained to determine classification. Similarly, in *CCE v. Wood Polymers Ltd.*, 1998 (97) ELT 193 (SC), the Supreme Court ruled that the essential character of composite goods should be based on their functional identity and commercial perception, rather than merely the presence of a performance-enhancing additive. Reinforcing this view, the Court in *Collector of Customs v. Indian Aluminium Cables Ltd.*, 1985 (21) ELT 3 (SC), underlined that the classification must be guided by the technical and commercial identity of the goods as they are presented at the time of clearance. These rulings collectively affirm that in composite goods or preparations with multiple constituents, the determination of classification must pivot on the component that defines the commercial utility and functional essence of the product. Further, Rule 3(b) of the General Rules for Interpretation must be applied with reference to the functional and commercial identity of the goods, particularly focusing on the component that imparts the essential character.

5.8 In the case of the applicant's graphene-based formulations, the presence of graphene—even in concentrations ranging from 0.02% to 40%—does not supersede the essential characteristics rendered by the carrier matrix. These products are not raw graphene or graphene in its natural state but are formulated preparations designed to serve industry-specific functions in electronics, automotive, aerospace, paints and coatings, and advanced materials sectors.

5.9 Accordingly, classification of these goods should follow the classification applicable to the carrier medium or matrix, depending on its chemical composition and industrial application. This position is also supported in the jurisdictional Commissionerate's comments, which endorses that the classification of graphene-based composite products must be determined based on the essential character of the finished product and not merely the presence of graphene. Given the diversity of formulations and carriers involved, classification must be decided on a case-by-case basis at the time of clearance, keeping in mind the physical characteristics, commercial identity, and functional end-use.

5.10 In view of the legal provisions, Harmonized System Explanatory Notes, and consistent judicial pronouncements, it is clear that graphene-based composite products—where graphene is dispersed in a dominant carrier medium without chemically transforming it—must be classified based on the essential character derived from the carrier matrix and not under headings applicable to graphene or graphite in raw or pure form.

5.11 In light of the detailed analysis above, I find that the presence of graphene in a carrier medium does not transform the essential character of the base material but serves solely to enhance its inherent functional properties. Accordingly, the classification of such composite products must be governed by the component that imparts the essential character to the final product, in line with Rule 3(b) of the General Rules for the Interpretation of the Customs Tariff. The graphene content, though functionally significant, does not override the dominant role of the carrier material in

defining the product's commercial and technical identity. I find that graphene, when incorporated into a carrier medium, does not alter the essential character of the base material but merely enhances its inherent properties. Therefore, the classification of such products must be determined based on the carrier or matrix that imparts the essential character to the final goods, rather than on the graphene content. Consequently, the appropriate classification shall be decided at the time of clearance from the CSEZ, considering the product's composition, commercial identity, and functional attributes.

6. Upon a thorough consideration of the above submissions I hold that the final classification of graphene when cleared as a composite material along with a carrier, i.e., graphene impregnated in a carrier medium such as a masterbatch or solvent shall be appropriately determined at the time of clearance from the Cochin Special Economic Zone (CSEZ), based on a case-specific assessment of the product's composition, predominant character, functional purpose, and market perception.

7. I rule accordingly.

6/8/25

(Prabhat K Rameshwaram)
Customs Authority for Advance Rulings,
Mumbai

सीमाशुल्क अग्रिम निर्णय प्राधिकरण, मुंबई
Customs Authority For Advance Rulings, Mumbai

F. No. CAAR/CUS/APPL/01/2025-O/o Commr-CAAR-Mumbai Dated: 06.08.2025

This copy is certified to be a true copy of the ruling and is sent to:

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(Vivek Dwivedi)
Dy. Commissioner & Secretary
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