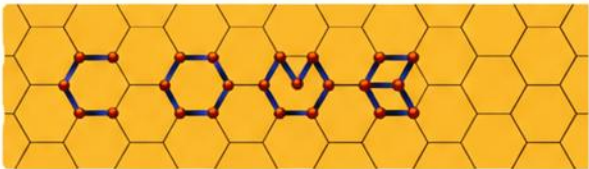




MATERIAL SPECIFICATION

Defective Few-Layer Graphene

Based on Raman Spectroscopy Analysis



1. Sample and Report Details

Customer Name	HYDAX PVT. LTD.	Customer Unique ID	ILPL475
Address	No. 22B, Attibele Industrial Area Ring Road, Anekel Taluk, Bengaluru Rural, Karnataka – 562107	Bar Code No.	RAM262705238
Contact No.	9886214012	Sample Description	G-1180826
Customer P.O. No.	NA	Sample Receipt Date	29/08/2026
Test Performed	Raman Spectroscopy	Sample Performance Date	01/09/2026
Test Performed At	Icon Labs Private Limited	Sample Report Date	09/09/2026
Instrument Details	Raman Spectroscopy Make: Renishaw Model: INCIA0120-20	Report No.	ILPL/26-27/RAMAN/001

2. Material Specification (Based on Raman Analysis – Area 2)

The analysed material (G-1180826, Area 2) is identified as defective few-layer graphene based on Raman spectroscopy.

Raman Characteristics – Area 2			Raman Spectrum – G-1180826 (Area 2)	
Parameter	Value (cm ⁻¹)	Description		
D band position	1346.42	Moderate intensity		
G band position	1583.59	Standard sp ² peak		
2D band position	2691.71	Well-defined peak		
I(D)/I(G)	Lower (relative)	Indicates defective few-layer graphene		

3. Material Description

Based on the Raman spectroscopic analysis (Area 2), the sample is graphene with few-layer structure and structural defects, as indicated by the presence of a standard sp² G peak, a moderate D band, and a well-defined 2D band.

4. Test Method

Technique	Raman Spectroscopy
Instrument	Renishaw, Model: INCIA0120-20
Test Performed At	Icon Labs Private Limited

5. Reference

- Jiang-Bin Wu, Miao-Ling Lin, Xin Cong, He-Nan Liu, Ping-Heng Tan; Raman spectroscopy of graphene-based materials and its applications in related devices. Chem. Soc. Rev. 2018; 47 (5): 1822–1873. <https://doi.org/10.1039/c6cs00915h>
- Ferrari, A., Basko, D. Raman spectroscopy as a versatile tool for studying the properties of graphene. Nature Nanotech 8, 235–246 (2013). <https://doi.org/10.1038/nnano.2013.46>