

Fullerene C60

Fullerenes and their applications in sensors

Fullerenes are a class of carbon molecules that have unique electronic, optical, and chemical properties. These properties make them attractive for use in various types of sensors.

High purity Fullerene-C60 (carbon 60, or C60, fullerenes) for use in thermal evaporation systems as either electron acceptors, n-type semiconductors, or interface layers.

We do offer regular grades which may contain traces of volatiles (solvents) as 99.50% – 99.90%. **High purity solvent-free** C60 is also offered as 99.50%+ to 99.99%+ grades, specially formulated for biological oriented R&D and processes demanding ultra-pure fullerenes.



Fullerene C60 Applications in sensors:

- **Gas and vapor sensors.** Due to its high specific surface area and ability to adsorb and desorb molecules. Example: detection of toxic gases in the chemical industry, detection of gas leaks in the oil and gas industry, detection of exhaust gases in the automotive industry.
- **Thermometers.** Due to its ability to change its electrical resistance in response to changes in temperature. Example: temperature monitoring in chemical manufacturing, temperature monitoring in food production, temperature monitoring in pharmaceutical manufacturing.
- **Humidity sensors.** Due to its ability to change its electrical conductivity in response to changes in humidity. Example: Moisture monitoring in food and pharmaceutical production.
- **Pressure sensors.** Due to its ability to change its electrical resistance in response to changes in pressure. Examples: pressure monitoring in hydraulic and pneumatic systems, pressure monitoring in the manufacture of chemical products, among others.
- **Optical sensors.** Due to its unique optical properties. Examples: light detection in the photovoltaic industry, light detection in the display industry, light absorption monitoring in chemical manufacturing, among others.
- The unique properties of fullerenes and their derivatives make them promising materials for use in various types of sensors, and ongoing research is aimed at further optimizing their properties and developing new sensing applications.
- **Synthesized via a Solvent-Free Method.** [1]
- **Green chemistry.**
- **Environmentally friendly synthesis using renewable energy.** [2]

[1] Solvents and volatiles are removed by subjecting the C60 to a controlled heat-cool process under dynamic inert medical nitrogen in order to suppress oxidation and preserve its pristine nature.

[2] Hydroelectric powered plant in Quebec.

References

“Versatile fullerenes as sensor materials”

<https://www.sciencedirect.com/science/article/abs/pii/S2468519421000343>

“Functionalized Fullerenes and Their Applications in Electrochemistry, Solar Cells, and Nanoelectronics”

<https://www.mdpi.com/1996-1944/16/3/1276>

“Electrochemical Sensors and Their Applications: A Review”

<https://www.mdpi.com/2227-9040/10/9/363>

“Nano-carbons in biosensor applications: an overview of carbon nanotubes(CNTs) and fullerenes (C60)”

DOI: [10.1007/s42452-020-2404-1](https://doi.org/10.1007/s42452-020-2404-1)



Fullerene C60
SOL5060

Available from **g level** (for R&D, Tech centers and universities) to **kg level** (for industrial developments).

REGULAR GRADES:

Grade 99.5% (SOL5060A)

Grade 99.90% (SOL5060Z)

SOLVENT FREE GRADES:



Grade 99.5% (SOL5060X)

Solvent-free*

Grade 99.90% (SOL5060W)


Solvent-free* 

Grade 99.95% (SOL5060Y)

Solvent-free* 

Grade 99.99% (SOL5060YY)

Solvent-free* 

*  These C60 products are going through further process in order to be highly soluble in organic solvents, oils and other related medias.

* Solvents and volatiles are removed by subjecting the C60 to a controlled heat-cool process under dynamic inert medical nitrogen in order to suppress oxidation and preserve its pristine nature.



Green chemistry



Environmentally friendly

SUSTAINABILITY is at the core of what we do and our engine for growth, which is why we prioritize the use of GREEN CHEMISTRY, avoid wastes, recover and recycle solvents and materials as much as possible and use renewable hydro-electrical energy to power our operations.

Buy now

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