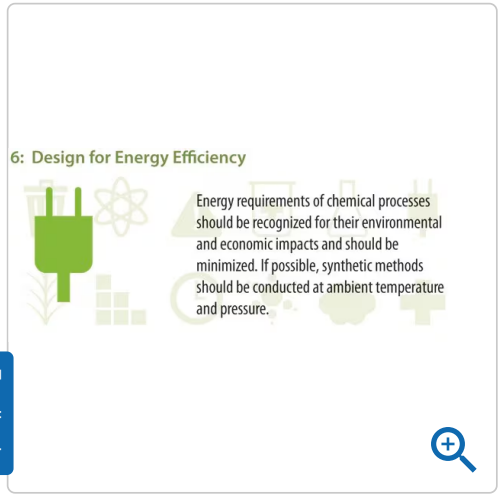

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Key Documents

SDS COA COO

Specification Sheet

View All Documentation

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Properties

940259 Sigma-Aldrich.

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Super P®

conductive additive for battery electrode

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Size/SKU	Availability	Price
50 g 940259-50G	Estimated to ship on August 03, 2026 from MILWAUKEE	$93.80
940259-1KG	Estimated to ship on August 03, 2026 from MILWAUKEE	$396.00

About This Item

Empirical Formula (Hill Notation):	C
CAS Number:	1333-86-4

940259-50G

$93.80

Estimated to ship on August 03, 2026 Details

1

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Zhuhai CosMX Battery Co. - EX1015
Zhuhai CosMX Battery Co. v. Ningde Amperex Tech. Ltd.
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Description
Safety Information
Documentation
Protocols and Articles
Peer Reviewed Papers
Recommended Products

Molecular Weight:	12.01
UNSPSC Code:	12171603
NACRES:	NA.21

Properties

grade	battery grade
Quality Segment	100
description	62 m^2/g (surface area (BET))
form	powder
greener alternative product characteristics	Design for Energy Efficiency Learn more about the **Principles of Green Chemistry**.
sustainability	Greener Alternative Product

Description

General description

Super P is a crucial conductive additive widely employed in the fabrication of battery electrodes. This finely divided form of carbon is typically derived from the incomplete combustion or thermal decomposition of hydrocarbon feedstocks like natural gas and petroleum oil, or oxygen-containing feedstocks such as fats and oils from animals and plants. Notably, it takes on a roughly spherical morphology with an average particle size of about 40 nm and exhibits an electrical conductivity ranging from approximately 5 to 30 S cm−1.

Super P conductive additive enhances the electrical conductivity and performance of battery electrodes, leading to improved energy efficiency and longer battery life. Its use supports greener technologies by enabling more durable, efficient, and sustainable energy storage solutions with reduced material waste. **Click here** for more information.

Application

Zhuhai CosMX Battery Co. - EX1015
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impurities	<1 ppm Ni, <5 ppm Fe
bp	4200 °C
mp	3550 °F
density	1.8-2.1 g/cm^3
λ_{max}	at 32 (mL/5g)
application(s)	battery manufacturing
greener alternative category	Enabling
SMILES string	[C]

Super P is a critical component of battery electrodes. It enhances the electronic conductivity and reduces the polarization of the battery electrode during operation. Super P disperses well in N-methyl pyrrolidone and is commonly integrated at 3-10 wt% of the solids during electrode slurry processing. Due to its small particle size, Super P can establish close electrical contact with the cathode active material and assemble electrostatically into extended conductive networks. These qualities, including its high specific surface area and superior electrical conductivity, position Super P as one of the most effective conductive additives for electrode fabrication.

Legal Information

SUPER P is a registered trademark of Imerys Graphite & Carbon Switzerland SA

Feedback

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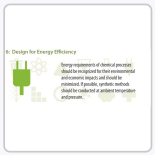	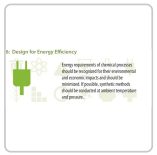	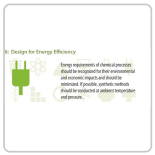	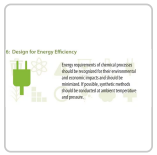
Sigma-Aldrich 940259 Super P®	940291 Super C45	Sigma-Aldrich 940305 Super C65	Sigma-Aldrich 940313 Vulcan® XC72

Zhuhai CosMX Battery Co. - EX1015
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This Item			
Quick View	Quick View	Quick View	Quick View
Quality Level 100	**Quality Level** 100	**Quality Level** 100	**Quality Level** 100
form powder	**form** powder	**form** powder	**form** powder
grade battery grade	**grade** battery grade	**grade** battery grade	**grade** battery grade
application(s) battery manufacturing	**application(s)** battery manufacturing	**application(s)** battery manufacturing	**application(s)** battery manufacturing battery manufacturing
density 1.8-2.1 g/cm^3	**density** 1.8-2.1 g/cm^3	**density** 1.8-2.1 g/cm^3	**density** -
description 62 m^2/g (surface area (BET))	**description** -	**description** -	**description** -

Feedback

Safety Information

Storage Class	wgk	flash_point_f	flash_point_c
11 - Combustible Solids	nwg	Not applicable	Not applicable

Documentation

Certificate Of Analysis | Certificate Of Origin | SDS | Specification Sheet

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Related Product

442704 **Lithium cobalt(III) oxide** 99.5% trace metals basis

915432 **Lithium manganese nickel oxide** spinel, powder, battery grade

916439 **Lithium Manganese Oxide spinel (LMO) powder** battery grade

915173 **LATP-coated Lithium Manganese Nickel Oxide (LMNO)**

powder, battery grade

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SAFETY DATA SHEET

Version 8.0
Revision Date 08/22/2024
Print Date 06/22/2026

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Super P, conductive additive for battery electrode

Product Number : 940259
Brand : Aldrich
CAS-No. : 1333-86-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

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2.2 GHS Label elements, including precautionary statements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : C
Molecular weight : 12.01 g/mol
CAS-No. : 1333-86-4
EC-No. : 215-609-9

Component	Classification	Concentration
Carbon black		
		<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

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Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
none

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
No special precautionary measures necessary.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.
Storage stability Recommended storage temperature
2 - 30 °C
hygroscopic

Storage class
Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Carbon black	1333-86-4	TWA	3 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	3.5 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	3.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	3.5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

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Respiratory protection
Recommended Filter type: Filter type P1
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.
These measures have to be properly documented.
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
No special precautionary measures necessary.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Color: black
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	4.0 - 11.0 at 50 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/ range: 3,652 - 3,697 °C (6,606 - 6,687 °F) - OECD Test Guideline 102 - (sublimed)
f)	Initial boiling point and boiling range	4,200 °C 7,592 °F at 1,013 hPa - OECD Test Guideline 103
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Density	1.500 - 1.900 g/cm3 at 20 °C (68 °F)
	Relative density	1.8 - 2.120 °C - OECD Test Guideline 109
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	> 315 °C (> 599 °F)
q)	Decomposition	No data available

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temperature

r)	Viscosity	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Strong oxidizing agents
Violent reactions possible with:

10.4 Conditions to avoid
Do not heat over: 290°C
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - > 8,000 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
LD50 Dermal - Rabbit - > 3,000 mg/kg
Remarks: (RTECS)

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h

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(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Buehler Test - Guinea pig
Result: Does not cause skin sensitization.
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Species: Rat

Application Route: Inhalation
Method: DNA repair
Result: negative

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Carbon black)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	semi-static test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h (OECD Test Guideline 203) Remarks: (above the solubility limit in the test medium)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 10,000 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Biological effects:
Further information on ecology

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

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IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

Carbon black	1333-86-4

Pennsylvania Right To Know

Carbon black	1333-86-4

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Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including Carbon black, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.0 Revision Date: 08/22/2024 Print Date: 06/22/2026

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3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Product Specification

Product Name:
Super P® - conductive additive for battery electrode

Product Number: **940259**
CAS Number: 1333-86-4

Formula: C
Formula Weight: 12.01 g/mol

TEST	Specification
Appearance (Color)	Black
Appearance (Form)	Powder
Carbon Content	≥ 95 %
Surface Area	≥ 10 m2/g
Sulfated Ash	≤ 0.05 %
Iron (Fe)	≤ 5 ppm
Trademark	Confirmed
SUPER P is a trademark of Imerys Graphite & Carbon Switzerland SA	

Specification: PRD.2.ZQ5.10000108603

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