SAFETY DATA SHEET

REVISED ON 2018/02/02
REVISION NO. 8

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -

NAME	CARBON NANOTUBES, MULTI-WALL –
APPLICABLE TO NANOLAB PRODUCT CODES	PD15L1-5, PD15L5-20, PD30L1-5, PD30L5-20, PD50L520, IG-CNT, BPD30L1-5, BPD30L5-20, BPD15L1-5, BPD15L5-20
CAS	*308068-56-6*

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
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SECTION 2. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -

GHS CLASSIFICATION
EYE IRRITATION (CATEGORY 2A)
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3)

GHS· **HAZARD LABEL ELEMENTS**

GHS07

HAZARD STATEMENT(S)

H315	MAY CAUSE SKIN IRRITATION.
H319	CAUSES SERIOUS EYE IRRITATION.
H335	MAY CAUSE RESPIRATORY IRRITATION.
H351	SUSPECTED OF CAUSING CANCER.

PRECAUTIONARY STATEMENT(S)

P202	DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD.
P261	AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.
P264	WASH SKIN THOROUGHLY AFTER HANDLING.
P271	USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA.
P280	WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION.

P305+P351+P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.

LABEL PRECAUTIONARY STATEMENTS
IRRITANT IRRITATING TO EYES AND RESPIRATORY SYSTEM. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. WEAR SUITABLE PROTECTIVE CLOTHING.

HMIS CLASSIFICATION

HEALTH HAZARD	1
FLAMMABILITY	0
PHYSICAL HAZARDS	0

POTENTIAL HEALTH EFFECTS
LIMITED EVIDENCE OF CARCINOGENIC EFFECT (VOLUNTARY CLASSIFICATION DUE TO METAL CONTENT)
MAY CAUSE SENSITIZATION DUE TO SKIN CONTACT (VOLUNTARY CLASSIFICATION DUE TO METAL CONTENT)
INHALATION MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION.
SKIN MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.
EYES CAUSES EYE IRRITATION.
INGESTION MAY BE HARMFUL IF SWALLOWED.

HAZARD CODES: XI

RISK STATEMENTS:

R36	IRRITATING TO EYES
R37	IRRITATING TO RESPIRATORY SYSTEM
R38	IRRITATING TO SKIN
R40	LIMITED EVIDENCE OF A CARCINOGENIC EFFECT
R43	MAY CAUSE SENSITIZATION BY SKIN CONTACT

SECTION 3. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CARBON NANOTUBES, >95%, CAS NUMBER: 308068-56-6
INORGANIC IMPURITIES <5%
ALUMINUM OXIDE, CAS NUMBER: 1344-28-1
IRON OXIDE, CAS NUMBER: 1345-25-1

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER. IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM. SPECIAL FIREFIGHTING PROCEDURES WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. COMBUSTION PRODUCTS INCLUDE OXIDES OF CARBON.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, AND RUBBER GLOVES. SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - -
USE WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID INGESTION AND INHALATION. STORE IN A TIGHTLY CLOSED, LIGHT TIGHT CONTAINER.

SECTION 8. - - - - - - EXPOSURE CONTROLS AND PERSONAL PROTECTION- - - - - -

NIOSH EXPOSURE LIMIT VALUE	0.01 MG/M3 (ACGIH)
GERMAN MAXIMALE ARBEITSPLATZKONZENTRATION (MAK)	6 MG/M3
BRITISH OCCUPATIONAL EXPOSURE LIMIT (OEL)	3.5 MG/M3
ITALIAN EXPOSURE LIMIT	3.5 MG/M3 TWA (TIME-WEIGHTED AVERAGE) 7 MG/M3 STEL (SHORT-TERM EXPOSURE LIMIT)
JAPAN EXPOSURE LIMIT	0.03 MG/M3 (BASED ON A 4 WEEK TEST WITH FULL-BODY INHALATION BY NAKANISHI ET AL., 2011). NEDO PROJECT “RESEARCH AND DEVELOPMENT OF NANOPARTICLE CHARACTERIZATION METHODS”
OCCUPATIONAL EXPOSURE CONTROLS	INSTALL AND OPERATE GENERAL AND/OR LOCAL EXHAUST VENTILATION SYSTEMS OF SUFFICIENT POWER TO MAINTAIN AIRBORNE CONCENTRATION BELOW THE DEFINED OR RECOMMENDED LIMIT. IF POSSIBLE, MANIPULATE UNDER FUMEHOOD TO AVOID EXPOSURE.

RESPIRATORY PROTECTION	USE A PROPERLY FITTED, AIR-PURIFYING OR AIR-FED RESPIRATOR COMPLYING WITH AN APPROVED STANDARD, SUCH AS NIOSH (US) OR EN 143 (EU). RESPIRATOR SELECTION MUST BE BASED ON KNOWN OR ANTICIPATED EXPOSURE LEVELS, THE HAZARDS OF THE MATERIAL, AND THE SAFE WORKING LIMITS OF THE SELECTED RESPIRATOR. FOR LITTLE EXPOSURE, USE TYPE P95 (NIOSH) OR TYPE P1 (EN 143) RESPIRATORS. FOR HIGH EXPOSURE, USE TYPE P99 (NIOSH) OR TYPE P2 (EN 143) RESPIRATORS. FOR FURTHER DETAILS, PLEASE CONSULT THE FOLLOWING ISO DOCUMENTS *ISO/TS 12901-1 2012 NANOTECHNOLOGIES -- OCCUPATIONAL RISK MANAGEMENT APPLIED TO ENGINEERED NANOMATERIALS -- PART 1: PRINCIPLES AND APPROACHES* *ISO/TS 12901-2 2014 NANOTECHNOLOGIES -- OCCUPATIONAL RISK MANAGEMENT APPLIED TO ENGINEERED NANOMATERIALS -- PART 2: USE OF THE CONTROL BANDING APPROACH*
HAND PROTECTION	HANDLE WITH PROTECTING GLOVES. WASH AND DRY HANDS AFTER MANIPULATION.
EYE PROTECTION	WEAR SAFETY GLASSES CONFORMING TO AN APPROVED STANDARD, SUCH AS NIOSH (US) OR EN 166 (EU).
SKIN PROTECTION	WEAR PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN. THE TYPE OF CLOTHING MUST DEPEND ON THE LEVEL OF EXPOSURE TO THE PRODUCT.

SECTION 9. - - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - - -

PHYSICAL STATE	POWDER
APPERANCE	BLACK
ODOR	ODORLESS
PHYSICAL PROPERTIES	
SOLUBILITY	WATER-INSOLUBLE
MELTING POINT	>3000C
DENSITY	1.3 G/CM3

SECTION 10. - - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -

STABILITY: STABLE.

INCOMPATIBILITIES STRONG OXIDIZING AGENTS HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS CARBON MONOXIDE, CARBON DIOXIDE HAZARDOUS POLYMERIZATION WILL NOT OCCUR.

SECTION 11. - - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

ACUTE TOXICITY	NO DATA AVAILABLE
INHALATION	NO DATA AVAILABLE
DERMAL	NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	NO DATA AVAILABLE
SERIOUS EYE DAMAGE/EYE IRRITATION	NO DATA AVAILABLE
RESPIRATORY OR SKIN SENSITIZATION	NO DATA AVAILABLE
GERM CELL MUTAGENICITY	MAY CAUSE GENETIC DEFECTS.
CARCINOGENICITY	MAY CAUSE CANCER.
IARC	3 - GROUP 3 NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS (CARBON NANOTUBES)
	2B - GROUP 2B POSSIBLY CARCINOGENIC TO HUMANS (CARBON NANOTUBES)
	3 - GROUP 3 NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS (CARBON NANOTUBES)
NTP	NO COMPONENT 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
ADDITIONAL INFORMATION	
RTECS	NOT AVAILABLE

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -

DOT (US)	NOT DANGEROUS GOODS
IMDG	NOT DANGEROUS GOODS
IATA	NOT DANGEROUS GOODS

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -

SARA 302 COMPONENTS	NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.
SARA 313 COMPONENTS	THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DEMINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.
SARA 311/312 HAZARDS	CHRONIC HEALTH HAZARD
MASSACHUSETTS RIGHT TO KNOW COMPONENTS	NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.
PENNSYLVANIA RIGHT TO KNOW COMPONENTS	CARBON NANOTUBES CAS-NO.308068-56-6
NEW JERSEY RIGHT TO KNOW COMPONENTS	CARBON NANOTUBES CAS-NO.308068-56-6
CALIFORNIA PROP. 65 COMPONENTS	THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -
THIS PRODUCT'S SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMERS IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HERE IN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED BY THE COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF THE USER, IT IS THE USER'S OBLIGATION TO DETERMINE THE CONDITIONS OF SAFE USE OF THIS PRODUCT. SUCH CONDITIONS SHOULD COMPLY WITH ALL FEDERAL REGULATIONS CONCERNING THE PRODUCT.
1. NANOLAB PRODUCTS ARE MANUFACTURED SOLELY FOR RESEARCH AND DEVELOPMENT.
2. ALL NANOLAB PRODUCTS ARE TO BE USED BY, OR DIRECTLY UNDER THE SUPERVISION OF, A TECHNICALLY QUALIFIED INDIVIDUAL.
3. ANYONE ENGAGED IN EXPERIMENTATION, RESEARCH, OR ANALYSIS OF NANOLAB PRODUCTS, INCLUDING THE PROCESSING, USE, TRANSPORT, STORAGE, AND DISPOSAL OF OUR PRODUCTS, SHOULD REVIEW OUR MSDS INFORMATION AND ALSO REVIEW AVAILABLE LITERATURE ON THE HEALTH AND SAFETY OF NANOMATERIALS AND CARBON NANOTUBES. NANOLAB HAS PLACED ON ITS WEBSITE, HTTP://WWW.NANO-LAB.COM/SAFETY.HTML LINKS TO ALL OF THE HEALTH AND SAFETY STUDIES OF WHICH IT IS AWARE. IF YOU ARE AWARE OF OTHER STUDIES WHERE NANOLAB NANOTUBES HAVE BEEN USED, PLEASE INFORM US AT INFO@NANO-LAB.COM