NANO*VERIFY* PROGRAMME STANDARD OPERATING PROCEDURE (SOP) (NVSB/PRO/01)

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PREFACE

The NANO*Verify* Programme was first launched in 2015 and was first nanotechnology-based product certification programme recognized by Ministry of Science, Technology and Innovation (MOSTI), Malaysia owned by NanoMalaysia Berhad (NMB) and operated by NanoVerify Sdn Bhd (NVSB).

NANO*Verify* Programme is a voluntary certification schemes for processes and products with claims of nano-elements in the range of 1 to 100 nm ("nm" referring to nanometer), and performance enhancements related to the presence of such nano-elements. However, the scheme that involved Type 5 (as ISO/IEC 17067)- a comprehensive evaluation and reviews in accordance with the requirement of ISO/IEC 17065 is known as NANO*Verify* Product Certification Scheme. "NANO*Verified*" certification will be awarded to the processes and products upon successful completion of the scheme, as determined by Parties.

As the nanotechnology market trends evolve, the standard operating procedure for this programme is also evolving towards the requirement of the ISO/IEC 17065 requirement, introduction of new standards and other regulatory requirements so that the NANO*Verify* Programme remains relevant. Among improvement incorporated in this edition are the revision of the document based on ISO/IEC 17065 requirements and comments including comprehensive test requirements for the programme.

NVSB reflects a comprehensive product certification framework together with the yearly surveillance evaluation and internal periodic monitoring to ensure compliance with all rules and regulations stipulated according to the NANO*Verify* Programme. Continuous support from relevant stakeholders will allow further recognition of NANO*Verify* Programme towards attaining universal acceptance.

NVSB is committed to ensure that all stakeholders perform their functions in manner that is professional and founded on high ethical standards which reflects all stakeholders' integrity as well as to safeguard impartiality.

This document provides SOP in support of best practices for the successful implementation of the verification and certification process. To achieve this as it relates to this SOPs:

a) stakeholders/ parties to which this SOP relates mush have, and be seen to have, the highest standard of honesty, propriety and integrity in the exercise of their duties;
b) NVSB shall need to ensure that this SOP safeguard the impartiality.

Chairman of NANO*Verify* Programme
29 May 2023

1.0 Introduction

1.1 NANO*Verify* Programme is a voluntary certification schemes for processes and products with claims of nano-elements in the range of 1 to 100 nm ("nm" referring to nanometer), and performance enhancements related to the presence of such nano-elements. NANO*Verify* Programme is open to all manufacturers/ businesses located locally (in Malaysia) and internationally. This certification programme is owned by NanoMalaysia Berhad (NMB) and fully operated by NanoVerify Sdn Bhd (NVSB).

1.2 There are three schemes under NANO*Verify* Programme which are NANO*Verify*, NANO*Trust* and GRAPHENE*Verify*. NANO*Verify* Product Certification Scheme encompass two categories: size characterization and functionality (surface, mechanical, and/or electrical) enhancement related to the presence of such nano-elements, while NANO*Trust* focuses mainly on size and element characterization as well as the functionality of the nanotechnology-based claim product. Additionally, GRAPHENE*Verify* focuses mainly on the characterization for graphene-based products.

1.3 However, only NANO*Verify* Product Certification Scheme which is Type 5 scheme (as ISO/IEC 17067) a comprehensive evaluation and reviews in accordance with the requirement of ISO/IEC 17065 and size characterization shall be the primary scope of accreditation, focusing on verifying the size of nanomaterials specifically in processes and products claiming nano-elements within the range of 1 to 100 nm. "NANO*Verified*" certification will be awarded to the processes and products upon successful completion of the scheme, as determined by Parties. This document is mainly covering the Standard Operating Procedure (SOP) for NANO*Verify* Product Certification Scheme.

2.0 Objective and Scope of the Document

2.1 This document was developed with the following objectives:

a) to provide basic requirement on the size characterization for nanotechnology based claimed product/process;
b) to provide assurance on the characterization (size) of the product containing nanomaterials to safeguard against fake nanotechnology-based product;
c) to support the implementation of certification programme for nanomaterials;
d) to standardize the workflow and ensure mutual understanding between parties involved in the certification process.

2.2 This document prescribes on the main category in the scheme, which is characterization, focusing on verifying the size of nanomaterials specifically in processes and products claiming nano-elements within the range of 1 to 100 nm in any dimensions, shapes and forms using various measurement methods. The

presence of nanomaterials and further information on sample preparation before the characterization shall not be defined further in this document.

3.0 Normative References

Refer to **Annex A**.

4.0 Terms and definitions

For the purposes of this document, the terms and definitions apply:

Atomic force microscopy (AFM)	Type of scanning probe microscopy (SPM), with demonstrated resolution on the order of fractions of a nanometer, more than 1000 times better than the optical diffraction limit.
Brunauer-Emmett-Teller (BET)	Analytical technique utilized for determining specific surface areas and pore size distributions of solid materials. The technique is based on the physical adsorption of inert gas, such as nitrogen, on the solid surface of the sample.
Central Limit Theorem	Distribution of a sample variable approximates a normal distribution.
Certification Panel Meeting	The meeting that held to approve, reject, suspend, terminate and/ or withdraw applications in accordance with the stipulations of ISO/IEC 17065 for the specific products to be certified.
Certification Unit	Unit that consists of Certification Manager and Auditors.
Client	Organisation or person responsible to NVSB or ensuring that certification requirements including product requirements are fulfilled as specified in standards or in other normative documents identified by the certification scheme. This term applies to both the “Applicant” and the “Client”.
Dynamic Light Scattering (DLS)	Technique in physics that can be used to determine the size distribution profile of small particles in suspension or polymers in solution.
Electron Microscopy (EM)	Technique for obtaining high resolution images of biological and non-biological specimens.

Evaluation	Combination of the selection and determination functions of conformity assessment activities. The evaluation process for the scheme is categorized into line audit and remote audit. Line audit is a physical evaluation that is conducted at manufacturer's place whereas remote audit is virtual evaluation activity conducted by video conferencing, email, and telephone to obtain audit evidence, if there are difficulties such as movement control order (MCO) to replace line audit.
Laser Diffraction Analysis	Technology that utilizes diffraction patterns of a laser beam passed through any object ranging from nanometer to millimeter in size to quickly measure geometrical dimensions of a particle.
Mean	The average of a data set, found by adding all numbers together and then dividing the sum of the numbers by the number of numbers.
Median	The middle value of the given list of data when arranged in an order.
Nanomaterial	Material with any external dimension in the nanoscale or having an internal structure or surface structure in the nanoscale of 1 nm to 100 nm in accordance with ISO standards. However, if the nanomaterials/ nanotechnology-based products are the statutory control products, they are additionally requested to meet the requirements of relevant laws and regulations, then definition may be defined further supporting by legit standard and test guideline for example using OECD as guideline for cosmetic etc.
NANO*Verify* Product Certification Scheme	A product/process certification scheme Type 5 (ISO/IEC 17067) for nanotechnology-based products claims 1-100 nm as the main criteria.
NANO*Verified*	The certification mark after the product/process is granted to be certified.
Particle Size Analysis	A technique which determines the size range, and/or the average, or mean size of the particles in a powder or liquid sample.

Process Capability (Cpk)	Measures how close a process is performing compared to its specification limits and accounting for the natural variability of the process.
Small Angle X-ray Scattering (SAXS)	A technique by which nanoscale density differences in a sample can be quantified. This means that it can determine nanoparticle size distributions, resolve the size and shape of (monodisperse) macromolecules, determine pore sizes, characteristic distances of partially ordered materials, and much more. This is achieved by analysing the elastic scattering behaviour of X-rays when travelling through the material, recording their scattering at small angles (typically 0.1 – 10°, hence the "Small-angle" in its name).

5.0 Baseline Requirement

5.1 The products that claim to be genuine nanotechnology-based products are required to have the size in range of 1-100 nm regardless the dimensions, shapes, forms and features. It shall need to be tested according to the measurement method (Table 1) stipulated in this document to conform with NANO*Verify* Programme. However, if the nanomaterials/nanotechnology-based products are the statutory control products, they are additionally requested to meet the requirements of relevant laws and regulations. Further standard operating procedure on the NANO*Verify* Product Certification Scheme shall be explained in **Annex B**.

Table 1: General methods for size characterization and its brief detail under NANO*Verify* Programme

Method	Atomic Force Microscopy (AFM)	Brunauer-Emmett-Teller (BET)	Electron Microscopy (EM)	Particle Size Analyzer			
				Dynamic Light Scattering (DLS)	Laser Diffraction Analysis	Particle Tracking Analysis (PTA)	Small Angle X-ray Scattering (SAXS)
Type of Diameter (d in nm)	Height-based equivalent circular diameter	Determining specific surface areas and pore size distributions of solid materials	- Equivalent circular diameter. - Can be obtained either minimum or maximum ferret.	Hydrodynamic equivalent spherical diameter	Hydrodynamic equivalent spherical diameter	Hydrodynamic equivalent spherical diameter	Volume square equivalent diameter
Measurement Principle	Height	Gas-adsorption method	- Projection (TEM) and imaging of signal electrons (SEM). - In relation to particle size image analysis either static or dynamic.	Time resolved light scattering	Intensity of light scattered as a laser beam passes through a dispersed particulate sample	Diffusion	Intensity of scattered light
Applicability	-Can be applied for particles in the size range 1 nm to 1000 nm and even larger particles. -Can distinguish between	-This method is applicable only to adsorption isotherms of type II (disperse, nonporous or macroporous solids) and type IV (mesoporous	-This method can be applied for particles in the size range from 1 nm to 1000 nm. The actual accessible size range depends on the instrument	-The measured size is based on the scattering properties which is measured based on the physical structure and the chemistry of the particles.	-Can be applied to a wide variety of particulate systems- particle sizes ranging from approximately 0.1 µm to 3 mm.	-Can be applied for particles with diameters in the size range from 10 nm to 1000 nm and even larger.	-Can be applied for particles in the size range from 1 nm to 200 nm. -Can distinguish

	individual particles and agglomerates/ aggregates only under specific conditions. -Measure the size regardless of the particles chemical or structural identity.	solids, pore diameter between 2 nm and 50 nm). Inaccessible pores are not detected. -The BET method cannot reliably be applied to solids which absorb the measuring gas.	settings, technical specifications of the equipment used and also on the test material properties.		-For spherical and non-spherical particles, a size distribution is reported, where the predicted scattering pattern for the volumetric sum of spherical particles matches the measured scattering pattern. - This is because the technique assumes a spherical particle shape in its optical model. For non-spherical particles the resulting particle size distribution is different from that obtained by methods based on other physical principles (e.g. sedimentation, sieving).	-Measured size is based on the physical structure and the chemistry of the particles.	between individual particles and agglomerates/ aggregates under specific conditions.

Important influencing Factors	-Tip quality. -Roughness of the substrate surface. -Intermittent contact mode (also called tapping mode or amplitude-controlled mode). -Vibration, acoustic and electronic noise.	-Homogeneous surface. -No lateral interactions between molecules.	-Electron dose applied, imaging mode. -Acceleration voltage. - Beam-induced solution chemistry changes. -Specifics of solution reactivity.	-Polydispersity Index. -Temperature. -Viscosity. -Sample concentration.	-Sampling and method of procedure are crucial in the final data interpretation. -The prevalence of laser techniques. -Visually outcome confirmation using an orthogonal tool (i.e. microscopy). -Wet dispersion is the most commonly used method due to its suitability for a wider range of samples.	-Dispersion medium (concentration range from 10^6 to 10^9 particles per ml). -Thickness of the double layer which can change the dispersing conditions.	-Scattering contrast. -Concentration of the sample. -Electron density.

5.2 Table 1 illustrates that there are four (4) main methods used for size characterization testing under NANO*Verify* Programme. Different measurement method delivers different kind of diameters which depend on material and properties of the measured particles. On a side note, different method has different pre-requisites as it is mainly depending on the proper sample preparation technique as well as software that are available in the chosen equipment.

5.3 Nonetheless, the baseline requirement for nanotechnology-based product to be certified shall be within 1-100 nm for AFM, BET and EM method that give the results in the measurement size range form, while for the particle size analysis method that give the results in percentage form (if there have done via DLS, PTA, laser diffraction and SAXS method), the percentage of size 1-100 nm shall need to be above 10%.

5.4 With reference to the NANO*Verify* Standard Operating Procedure **(Annex B)**, Product for size characterization testing will be taken at random during the evaluation activities. The product may also will be taken during the surveillance audit activity. Sufficient amount of sample shall be collected for testing and backup. NVSB procedure in selecting the laboratory service provider (NVSB/QPRO 10) shall be the supplement in this document as there is a form to fill for selection of product as well as laboratory to be chosen by NVSB before further certification.

5.5 The size characterization testing shall be realised on central limit theorem as minimum 30 measurements are taken during the test. The results shall need to be statistically reported encompass of the result of medium, standard deviation as well as process capability (Cpk) value.

5.6 The process capability (Cpk) value shall be used as indicator whether the product have any difficulty in testing or issues in production and/ or not which relates to the action of random market surveillance audit.

5.7 The compliance reporting of the testing shall not be compulsory as it depends on the laboratory capability to report such information especially when they are accredited with ISO/IEC 17065.

5.8 As for the image analysis, it will be concentrates upon the analysis of digital images created from either light or electron detection systems to get better quality and particle size accuracy measurement within the measurement frame if it used electron microscopy. This does not apply on the method of creating the image although the detection settings chosen together with its calibration are important for sizing accuracy.

5.9 Test methods other than those specified in this document may be used, provided that the test methods could be verified against accepted standard test methods. This shall be accompanied with supporting documents provided by the

independent testing laboratory together with all testing results previously conducted by the applicant.

5.10 The following standards contain provisions, which through reference in this text constitute provisions of this document. At the time of publication of this document, the editions are valid. All standards are subject to revision and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent standards indicated below:

Table 2: Test Method for size characterization

Method	Standard
Atomic Force Microscopy (AFM)	ISO 13095:2014 ISO 23729:2022 ISO/TS 23151:2021 ISO/TR 11811:2012
Brunauer, Emmett and Teller (BET)	ISO 9277:2010
Electron Microscope (EM)	ISO 21363:2020 ISO 29301:2017 ISO 25498:2018 ISO 20263:2017 ISO 22493:2014 ISO/TS 24597:2011
Particle Size Analysis	
Dynamic Light Scattering (DLS)	ISO 22412:2017 ISO/TR 22814:2020
Image Analysis	ISO 13322-1:2014 ISO 13322:2021
Laser Diffraction Analysis	ISO 13320:2020
Particle Tracking Analysis (PTA)	ISO 19430:2016 ISO/DIS 19430
Small Angle X-ray Scattering (SAXS)	ISO 17867:2020

5.11 The test report format shall be further explained in **Annex C.**

Annex A

Normative Reference

ASTM-E2859-11	Standard Guide for Size Measurement of Nanoparticles Using Atomic Force Microscopy
ISO 13095:2014	Surface Chemical Analysis — Atomic force microscopy — Procedure for in situ characterization of AFM probe shank profile used for nanostructure measurement
ISO 13320:2020	Particle size analysis – Laser diffraction methods
ISO 13322-1:2014	Particle size analysis – Image analysis methods – Part 1: Static image analysis method
ISO 13322-2:2021	Particle size analysis – Image analysis methods – Part 2: Dynamic image analysis methods
ISO 16700:2004	Microbeam analysis - Scanning electron microscopy - Guidelines for calibrating image magnification
ISO 17867:2020	Particle size analysis – Small angle X-ray scattering (SAXS)
ISO 19430:2016	Particle size analysis – Particle tracking analysis (PTA) method
ISO 20263:2017	Microbeam analysis — Analytical electron microscopy — Method for the determination of interface position in the cross-sectional image of the layered materials
ISO 21363:2020	Nanotechnologies — Measurements of particle size and shape distributions by transmission electron microscopy
ISO 22412:2017	Particle size analysis Dynamic Light Scattering (DLS)
ISO 22493:2014	Microbeam analysis — Scanning electron microscopy — Vocabulary
ISO 23729:2022	Surface chemical analysis — Atomic force microscopy — Guideline for restoration procedure for atomic force microscopy images dilated by finite probe size
ISO 25498:2018	Microbeam analysis — Analytical electron microscopy — Selected area electron diffraction analysis using a transmission electron microscope

ISO 29301:2017	Microbeam analysis — Analytical electron microscopy — Methods for calibrating image magnification by using reference materials with periodic structures
ISO 9277:2010	Determination of the specific surface area of solids by gas adsorption — BET method
ISO/DIS 19430	Determination of particle size distribution and number concentration by particle tracking analysis (PTA)
ISO/IEC 17065:2012	Conformity assessment — Requirements for bodies certifying products, processes and services
ISO/IEC 17025	Testing and calibration laboratories
ISO/TR 11360:2010	Nanotechnologies- Methodology for classification and categorization of nanomaterials
ISO/TR 22814:2020	Good practice for Dynamic Light Scattering (DLS) measurements
ISO/TS 12805:2011	Nanotechnologies - Materials specifications - Guidance on specifying nano-objects
ISO/TS 23151:2021	Nanotechnologies — Particle size distribution for cellulose nanocrystals
ISO/TS 24597:2011	Microbeam analysis - Scanning electron microscopy - Methods of evaluating image sharpness
ISO 80004-1:2023	Nanotechnologies – Vocabulary — Part 1: Core vocabulary
ISO/TS 80004-3:2020	Nanotechnologies — Vocabulary — Part 3: Carbon nano-objects
ISO/TS 80004-5:2011	Nanotechnologies — Vocabulary — Part 5: Nano/bio interface
ISO/TS 80004-6:2021	Nanotechnologies — Vocabulary — Part 6: Nano-object characterization
ISO/TS 80004-7:2011	Nanotechnologies — Vocabulary — Part 7: Diagnostics and therapeutics for healthcare
ISO/TS 80004-8:2020	Nanotechnologies — Vocabulary — Part 8: Nanomanufacturing processes

IEC/TS 80004-9:2017	Nanotechnologies — Vocabulary — Part 9: Nano-enabled electrotechnical products and systems
ISO/TS 80004-12:2016	Nanotechnologies — Vocabulary — Part 12: Quantum phenomena in nanotechnology
NVSB/PRO/03	NANO*Verify* Trademark and Logo Procedure
NVSB/QPRO/003	Management of Certification Panel
NVSB/QPRO/005	General Evaluation Procedure
NVSB/QPRO/010	Procedure of Outsourcing Laboratory
OECD Test Guideline No 125	Nanomaterial Particle Size and Size Distribution of Nanomaterials

Annex B

Procedure of Product Certification - NANO*Verify* Programme

1. This NVSB product certification is granted only if the applicant complies with NANO*Verify* Programme Standard Operating Procedures. The applicant shall maintain an established quality management system to ensure the continuous compliance with the standard operating procedures. Since this is a voluntary type of certification, thus there is a need for the applicant to comply with the legal and regulatory requirements if the products are under statutory control prior to this certification.

2. The objective of the certification is to:
   a) ensure the genuineness of nanotechnology-based products against fake products;
   b) facilitate the sales of genuine nanotechnology products;
   c) create greater market acceptance locally and overseas;
   d) boost consumer confidence and trust.

3. This document is the general guideline in conducting NANO*Verify* Product Certification Scheme is proposed to ensure proper action, evaluation, supplementation and/or documentation are for every application by the clients.

4. NANO*Verify* Product Certification Scheme is open to all includes and not limited to:
   a) nanomaterial manufacturer;
   b) nanomaterial user (producer of nano-intermediates and nano-application products);
   c) nanomaterial trader;
   d) nanotechnology products seller;
   e) user of nanotechnology in the operations/ processes;
   f) others (for the company/applicant to specify).

5. Figure 1 shows the workflow for the SOP while the description of each step explained in Table 3.

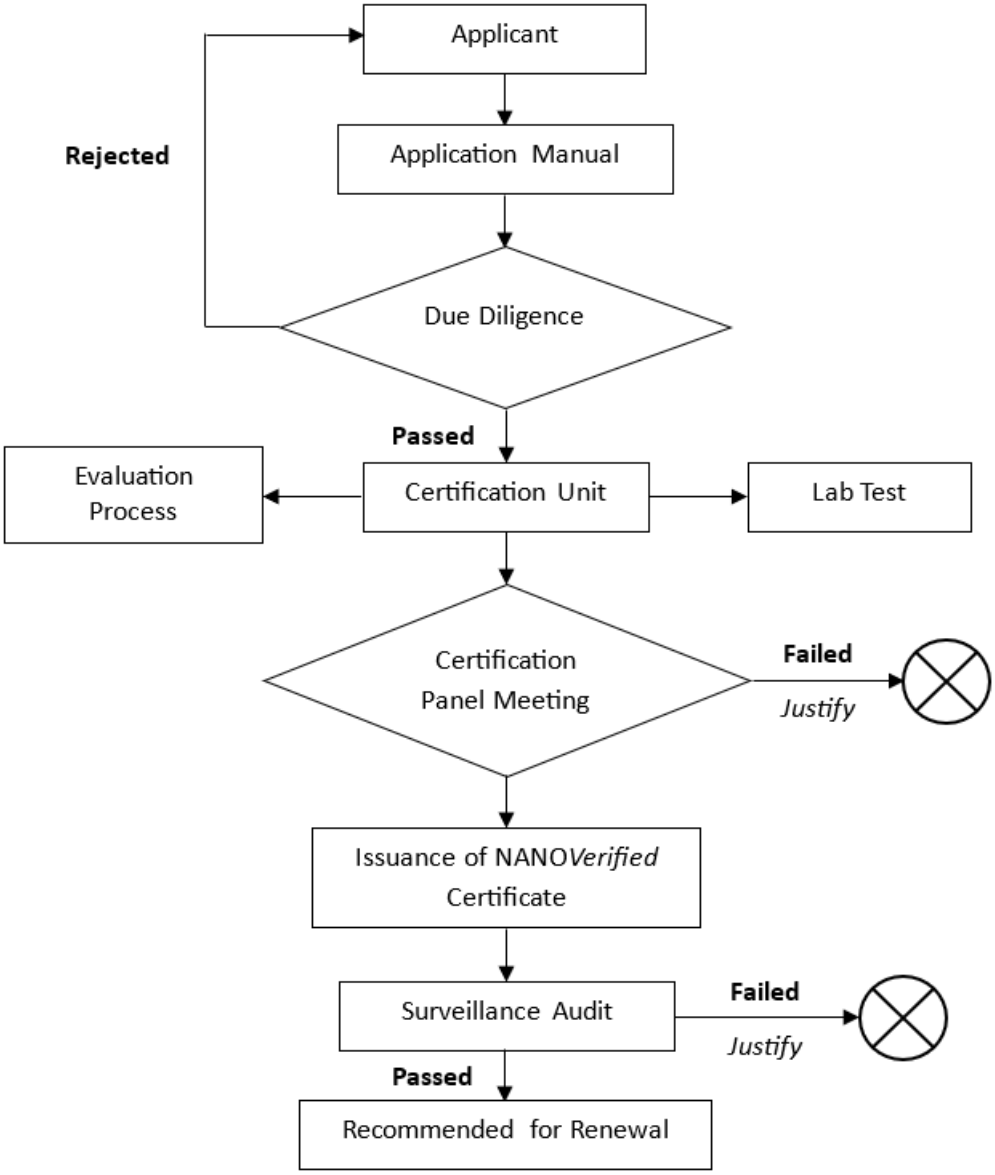

Figure 1: Standard operating procedures (SOP) for NANO*Verify* Product Certification Scheme

Table 3: Detailed description of each step in the SOP's workflow

No.	Step	Description	Responsibility
1	Application (Manual)	i. Application form (NVP-05-FOR-01) can be found manually through NVSB website or through direct request to NVSB via meeting, email or fax. ii. NVSB provides a quotation for the certification fee based on the scope of certification (characterization or functionality) chosen by the client. iii. *Certification fee structure (validity of certification is 2 years) (a) characterization (size): *RM10,000/year (b) functionality (surface/mechanical/ electrical): *RM 12,500/ year *Exclusive of SST (6%), subject to change. iv. There are two payments method- annually and lumpsum. The client shall remit payment upon the confirmation of the scope of certification by submitting a purchase order (PO) to NVSB. v. There is no monthly instalment method for the payment and the payments are not refundable once it has been made. vi. The client shall fill in the application form and prepare documents as per review checklist (NVP-05-FOR-02) and sign the non-disclosure agreement (NVP-05-FOR-03) upon payment.	NVSB and Client

2	Due Diligence	i. Upon remittance of payment by the client and signing of the non-disclosure agreement, NVSB will start to conduct a due diligence exercise on the product/process to be certified. The due diligence will be conducted based on the review checklist (NVP-05-FOR-02). ii. NVSB shall review and check the company information (eg: business license, SSM, etc) and details of product to be evaluated, this is to ensure that: a) the information about the client and the product is sufficient for the conduct of the certification process; b) any known difference in understanding between NVSB and the client is resolved, including agreement regarding standards or other normative documents: c) the scope of certification sought is defined; d) the means are available to perform all evaluation activities; e) NVSB has the competence and capability to perform the certification activity. f) Additional information about client's productions is technical capable to meet the requirement (if any) of NANO*Verify* Product Certification Scheme is sufficient g) All the related documentary evidence whichever relevant to Quality Management System (QMS) (if any) is sufficient. h) The applicant agrees on the payment method by issuing the purchase order (PO) for the certification fee and/or the client already made the payment upon receival invoice from NVSB iii. If the information/documentations are not within NVSB procedure in this stage, NVSB will reject the application and notify the client to revisit the application to	NVSB and Client NVSB NVSB

		ensure that it is within the procedure. However, if the application is found unsuitable after the due diligence, NVSB will reject the application and provide a written justification to the client. iv. The next step of certification shall be proceeded if all the information/ documentation/due diligence matters are sufficient according to NVSB procedure in this stage. NVSB will notify the client via email.	
3	Evaluation Process	Evaluation process shall be conducted by the NVSB Certification Unit upon the completeness of due diligence stage. The detailed process for the evaluation process is elaborated in NVSB/QPRO/005 (General Evaluation Procedure). This includes the following items: a) NVP-05-FOR-04 (Notification Letter to Auditor) b) NVP-05-FOR-05 (Audit Notice) c) NVP-05-FOR-06 (Audit Plan) d) NVP-05-FOR-07 (Audit Checklist) e) NVP-05-FOR-08 (Audit Attendance) f) NVP-05-FOR-09 (Audit Notes) g) NVP-05-FOR-10 (Audit Report) h) NVP-05-FOR-11 (Audit Non-Conformance Form) i) NVP-05-FOR-12 (Sample Selection Form) j) NVP-05-FOR-13 (Remote Audit Form) Product sampling will be selected randomly production relevant to the scope of application for certification. Sample selection form (NVP-05-FOR-12) shall need to be filled during the product sampling.	NVSB

4	Lab Test	i. Laboratory service provider for the scheme will be identified by NVSB as per NVSB/QPRO/010. ii. Approved laboratory service provider under NVSB shall meet the following criteria: a) tested at the accredited laboratory under ISO/IEC 17025, or b) tested at any laboratory that follow the requirement of ISO/IEC 17025 (non-accredited) - based on procedure of outsourcing laboratory (NVSB/QPRO/010). iii. The method(s) and instrument(s) to be used for the testing will be determined by NVSB depending on the product to be certified. iv. The results of testing must be submitted to NVSB minimum one (1) month from the receipt of the samples but subject to the availability of the equipment, difficulty level of the samples as well as the other external or internal factor such as testing payment, breakdown of equipment etc.	NVSB and laboratory service provider
5	Certification Panel Meeting	i. The meeting that held to approve, reject, suspend, terminate and/ or withdraw applications in accordance with ISO/IEC 17065, for the specific products to be certified. This meeting had been detailed out in NVSB/QPRO/003 and NVSB/QPRO/005. ii. The meeting will be done at least once per quarter or when necessary. iii. Successful applications will be issued an approval letter (NVP-05-FOR-14) and awarded with the NANO*Verified* certificate (NVP-05-FOR-15) as well as NANO*Verify* Programme Agreement (NVP-05-FOR-16).	NVSB

		iv. Failed applications will be provided with justification on the decision made by the NVSB.	
6	Issuance of NANO*Verified* certificate	i. The final certificate (NVP-05-FOR-15) shall be sent to the client along with conditions for the use of logo and the certification mark upon the decision during the certification panel meeting and written approval by NVSB. ii. Besides NANO*Verified* certificate issuance, the client will obtain below documents: a) NVP-05-FOR-14 (Approval Letter) b) NVP-05-FOR-15 (Certificate) c) NVP-05-FOR-16 (NANO*Verify* Programme Agreement) d) NVP-05-FOR-18 (Certification Report) iii. Validity of the certificate is two (2) years. iv. The entire process of issuance of the NANO*Verified* certificate shall not exceed three (3) months. NVSB shall need to inform the client if there is/are problem(s) occur during the certification process. v. The client shall inform NVSB if there is a need to change the details in the certificate within 2 years of certification. They need to fill in the form (NVP-05-FOR-17) for such a case. vi. The charge for changing the details on the certificate and changing the formulation of the certified product will be borne by the client. a) cost of change of details in certificate: RM 300 (exclusive SST (6%)).	NVSB NVSB and Client Client

		b) cost of testing if the certified product formulation change- depending on the complexity and difficulty level of the product. The client shall need to give further information on sample preparation to ease the testing.	
7	Issuance of NANO*Verified* Certification Mark	i. Upon successful completion of the NANO*Verify* Product Certification Scheme, Certification Holder shall be given approval in writing by NVSB considering the product has been genuinely nanotechnology based certified with given an exclusive certification number and entitled to publish and display the certificate and the certification mark on promotional materials, correspondence and advertising with strict adherence format, terms and conditions in relation to the scope and category of certification. ii. Further information on procedure of the Certification Mark shall need to be referred to NVSB/PRO/03.	NVSB and Client
8	Surveillance audit, renewal/ withdrawal/ suspension/ termination of certification,	i. Successfully certified product(s) shall be subjected to the NVSB surveillance audit which will be done randomly (at least to one certified product once per year) to comply with ISO/IEC 17067 Type 5 requirements. ii. However, the re-testing shall be conducted every 5 years on the verified product (model appeared on the license) as long as there is no significant substitution of the nanomaterial/change in formula/ingredient. iii. If the surveillance audit is passed, the product will be recommended for renewal. However, if the surveillance audit fails, NVSB will issue a justification letter. iv. NVSB shall make decisions on renewal certification based on the evaluation of the surveillance audit- appointed Auditor shall	NVSB and Client

		recommend for renewal of certification subjected to satisfactory of audit report and closure of non-conformance (if applicable). The renewal is solely dependent on the client as the client needs to pay first prior to the issuance of the renewed certificate. v. Clients that are interested to renew their certificate after 2 years can express their interest by approaching NVSB and starting the renewal process with the following charges: a) Characterization (size): *RM6,500/year b) Functionality (surface/mechanical/ electrical): *RM 8,500/year *Exclusive of SST (6%), subject to change. vi. Re-testing shall be done in five (5) years as long as there is no formulation/ ingredient change in the certified product. vii. If there is no response to renew the certificate by the client, the certification shall be recommended for withdrawal 2 months after expiry date. The withdrawal of certification may also be initiated through a written request from the client. viii. The certification may be suspended for a limited period which shall be determined based on the notification and recommendation form (NVP-05-FOR-21 and NVP-05-FOR-22) by the assigned Auditor. ix. If the response /corrective actions to suspension are not satisfactory, the termination of certification shall be recommended.	Client

		x. Further details on surveillance, renewal, withdrawal, suspension and termination are specified in NVSB/QPRO/005.	

Annex C

Test Report

1. The results of each test or series of tests carried out by the laboratory shall be reported accurately, clearly, unambiguously and objectively, and in accordance with any specific instructions in the test methods.

2. Each test report shall include at least the following information, unless the laboratory has valid reasons for not doing so:

   a) a title (e.g. “Test Report”);

   b) the name and address of the laboratory, and the location where the tests were carried out, if different from the address of the laboratory;

   c) unique identification of the test report (such as serial number), and on each page an identification in order to ensure that the page is recognised as a part of the test report, and a clear identification of the end of the test report;

   d) the name and address of the customer;

   e) identification of the method used;

   f) a description of the condition of, and unambiguous identification of the item(s) tested not limited to the information of batch number, production date and/or expiry date etc (if any)

   g) the date of sampling and the receipt of the test item(s) where this is critical to the validity and application of the results, and the date(s) of performance of the test;

   h) reference to the sampling plan and procedures used by the laboratory or other bodies where these are relevant to the validity or application of the results;

   i) the test results with, where appropriate, the units of measurement;

   j) the name(s), function(s) and signature(s) or equivalent identification of person(s) authorising the test report;

   k) where relevant, a statement to the effect that the results relate only to the items tested;

l) where applicable, deviations from, additions to, or exclusions from the test method, and information on specific test conditions, such as environmental conditions;

m) where relevant, a statement of compliance or non-compliance with requirements and/or specifications;

n) where applicable, a statement on the estimated uncertainty of measurement; information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit;

o) where appropriate and needed, opinions and interpretations;

p) where necessary, the location of sampling, including any diagrams, sketches or photographs;

q) details of any environmental conditions during sampling that may affect the interpretation of the test results;

r) any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned;

s) additional information which may be required by specific methods, customers or groups of customers. (For example, statement of traceability/reference).