**Editorial comments:**

Formatting:

Please reduce the length of the short abstract to 50 words or less.

* Revised (51 words to 50 words)

Please delete “Text” from the protocol heading.

* Deleted

Please use a dash (-) rather than ~ to indicate a range (ie. in 1.1.1 should be 30 – 80 rpm).

* Revised

Please define all abbreviations at first occurrence (ie. TEM, CNT, FE-SEM etc.).

* All abbreviations are defined (ie, TEM, CNTs, FE-SEM, SEM)

Actions in 2.5-2.7 should be performed in section 1 for setting up the chamber.

* Revised

References – Please abbreviate all journal titles.

* Revised

Grammar:

Please copyedit the manuscript for numerous grammatical errors.

* Revised

Please correct the grammar in the title, which should read: Testing of nanoparticle release from a composite containing nanomaterial using a chamber system

* Revised

Please edit manuscript for redundancy. For instance, “Evaluating the nanomaterial release from products containing nanomaterials is a crucial step in assessing the safety of products containing nanomaterials” should read “Evaluating nanomaterial release from products containing nanomaterials is a crucial step in assessing the safety of these products.”

* Revised

Figure 1 – “Orifice” is misspelled.

* Revised

Additional detail is required:

1.3.1 – What is the specimen?

* Specimen is a nanocomposite for abrasion test. Manuscript was revised.

2.10 – How is this checked?

* Using CPC. Manuscript was revised.

2.16 – How and with what is the chamber washed?

* Using kimwipes and IPA (iso-propyl alcohol), Manuscript was revised.

Branding:

1.1.1, Discussion – Taber, Figure 1, figure 5 – Please remove model and company names. These should appear in the materials table only. (UCPC 3775, TSI; Model 1.109, Grimm)

* Revised

**Reviewers' comments:**

**Reviewer #1:**

*Manuscript Summary:*

N/A

*Major Concerns:*

N/A

*Minor Concerns:*

suggest conducting testing with sandpapers from different manufactures to see if there are differences in the emissions both quantitatively and qualitatively

* Thank you for suggest.

*Additional Comments to Authors:*

1. it appears that "CNT containing a nanocomposite" was meant to be "a nanocomposite containing CNT";

* revised

2. in the caption for Figure 6 please specify which composite contained CNT which did not.

* revised

**Reviewer #2:**

*Manuscript Summary:*

Accept

*Major Concerns:*

N/A

*Minor Concerns:*

N/A

*Additional Comments to Authors:*

N/A

**Reviewer #3:**

*Manuscript Summary:*

The authors describe modifications of a setup that was previously used in inter-lab comparisons. These comparisons were limited in repeatability between labs and the modifications aim to resolve this limited robustness of the method. The topic is relevant for many nanotechnology labs and is suitable for video production.

*Major Concerns:*

For experts interested in replication, even more details must be added. See list below. Further, no data supports the claim that the modifications really improve the robustness. E.g., it would be esay to switch off the neutralizer xrays, and to demonstrate a change in scatter. Analogously, authors should not only claim, but should demonstrate usefulness of the perforated mixer, of the additional air flow. Otherwise, readers might replicate an unnecessarily complex setup... Finally, as the JOVE publication shall serve others to replicate the setup, safety issues must be reported. E.g. protection measures on xray radiation? mechanical injury by moving parts? Dust exposure when opening the chamber?

* The particles, which are generated by abrasion, were deposited on surface of the specimen and abrasion wheels, strongly. Therefore, it is hard to measure the abrased particles. The additional air inlet can help to solve this problem to particle suspension. Manuscript was revised.

*Minor Concerns:*

For a wider audience, the test lacks introduction and context. This should be improved.

* Did you feel lacking in any part? Please, tell me in detail.

In the discussion L315 to 328, refer to Harper et al, J Phys Conf Ser 2015.

Must provide the following details

L131 Sanding grit size

* Sanding grit size is 100. Manuscript was revised.

L222 Synthesis of polymer used for demonstration

* At L222, there is nothing about synthesis of polymer. Please, check your question.

L148 Flow splitting for detectors

* Yes.

Figure 1 supplier of charcoal filter?

* The charcoal filter was custom-made.

L189 background with motor running?

* If the motor means a blower then answer is yes.

L217 were tubes cleaned, too?

* Recommend.

L233 sampler does not appear in method description above?

* Revised.

L262 result of the zero test?

* The zero test method and result were introduced at L189-190.
* As seen in Figure 5, time 0-60 was result of the zero test.

Figure 8 should be amended with zooms that use a magnification that allows a positive control (pure CNT) to be identified.

* The pure CNT has high aspect ratio and it was shown like fiber. But, as seen in Figure 8, abrased particles shape was not fiber. And free CNT could be detected in this magnification.

*Additional Comments to Authors:*

N/A

**Reviewer #4:**

*Manuscript Summary:*

N/A

*Major Concerns:*

Headline of the article claims NANOparticle release testing, but there are only measuring results presented for "Total particle number measured using CPC and OPC", but not the number of nanoparticles, smaller 100 nm. This would require e.g. a scanning mobility particle sizer, mentioned ONLY in the abstract.

* This paper provides the nanoparticle measuring method from nanocomposite by abrasion. CPC can measure nano scale particles and OPC can measured micro scale particles. You can find amount of the nanoparticles from nanocomposite using CPC and OPC data. If you want to know exactly particle size or shape, then you can sample the particle on the filter for microscopy.
* SMPS could not using this test. Because, the SMPS need to scanning time for measuring particle size distribution. It means particle number concentration should not be changed during scanning time for reliable data. But, as you can see the Figure 5, the particle number concentration was changed continuously.

165 2.4) Locate the neutralizer (soft X-ray ionizer) 28 cm away from the center of the test

166 specimen at a 45 o angle, as seen in Figure 2, to reduce the electro-static particle deposition on

167 the chamber walls.

- This very detailed arrangement should be validated before recommending it to standardization. Therefore in this article the effect of this arrangement should be at least demonstrated, e.g. what was measured during switching off the neutralizer?

* The neutralizer can help to minimize the charged state of the particle. Therefore, the particle wall loss was decreased by the electro-static force. If you use different configuration of the neutralizer, then I can’t warrant that result of test. And it was attached comparison result of neutralizer on/off at Figure 5.

*Minor Concerns:*

Abstract, line 9: "scanning mobility particle sizer" is not mentioned in the main text - delete in abstract or add in main text

* Something was wrong. I was not mentioned about SMPS (scanning mobility particle sizer) in my paper.

304 Taber abrasion testers are now widely used to simulate

305 sanding processes and study the abrasion resistances of materials and coatings.

- Taber abraser applies a too slow abrasion speed for simulating sanding, e.g. like useable in parquet sanding. Real sanding with at higher speed would cause the polymer matrix of a composite to show a more rigid (hard) property, resulting in smaller particle size distribution of released particles. - mention this limitation of the test.

* I was not conducted release test with different abrasion speed. So I cannot be sure that. If you have some reference about it. Please, let me know. Then, I will mention the limitation of the test.

Figure 3 abraser, (b) top view: axis of the rotation centres of the abrasion wheels is crossing the rotation axis of the specimen in this figure, but this is not the case for the real device taber abraser. This device performs therefore an additional friction at the touching point of the wheel to the specimen, not only rolling - correct the drawing by moving the axis of the a little bit upwards, away from the specimen centre

* Revised.

*Additional Comments to Authors:*

N/A