

Topic Number	Topic	Comment	EPA Response
1	Test Methods: CRRC -1	Stakeholder is concerned updates to the CRRC-1 standard will impact the ENERGY STAR Roof Products Version 3.0 specification.	For purposes of ENERGY STAR qualification it is important that all qualified products are evaluated using the same test methods and conditions. This is why EPA references specific versions of test procedures in each ENERGY STAR specification. As these test methods are updated, EPA may decide to amend the specification references if assured that the new test procedure will yield comparable results. If a referenced test procedure is updated in such a way that products are tested differently, then EPA will need to evaluate performance data and possibly performance levels under a specification review process.
2	Test Methods: Sampling	Stakeholder is of the opinion the Maintenance of Solar Reflectance Test Method sampling requirement of three measurements is not adequate for radiant measurements and would like the number of measurements increased to ensure more accurate results.	Per the Maintenance of Solar Reflectance Test Method Rev. Jan. 2017, Test Procedure section i), EPA requires laboratories to "Make at least three (3) measurements of solar reflectance from different areas on each sample." Testing of three samples is consistent with many other test standards referenced in ENERGY STAR specifications for other product categories and partners may elect to have additional measurements taken. Aside from this comment, EPA is not aware of issues with regards to accuracy in ratings but may investigate the issue further if enough supporting data is provided that warrants additional testing under future versions of the Test Method.
3	Scope: Wall coatings	Stakeholder is of the opinion wall coatings should be included in the roof products program.	EPA's understanding is roof product materials used as wall coatings may not provide the same energy savings as roof products used for roof purposes. Further, roof product test methods do not necessarily provide a fair basis of comparison for wall coatings. EPA may consider covering wall coatings under subsequent specification revisions if enough data and supporting information can be provided that suggest significant savings potential based on an industry supported test method.
4	Test Method: Slope requirements	Stakeholder is of the opinion the slope allowed for exposure, between 2:12 and 12:12 is too broad, limiting the possibility of comparing products, and recommends either narrowing the allowed slope range or requiring the weathering test slope to be listed with each product.	Aside from this comment, EPA is not aware of issues with regards to distortions in test data due to variances in the slope of products but may investigate the issue further if enough supporting data is provided that warrants additional test method requirements. EPA will consider collecting the weathering test slope to determine if setting specification requirements is appropriate under subsequent specification revisions.
5	Regional qualification	Stakeholder suggests EPA should list the exact States and or portions of the applicable state associated with each specific climate zone. Or, it is suggested that EPA create a designation of Zones 1, 2 and 3 and a producer's product listing can contain that specific zone where their products qualify. Use of regional climate zone designations clearly will provide more accurate data for the user be they private or public / government properties.	While EPA appreciates regional differences a state or regional qualification program is complex and difficult to enforce. Instead, EPA will consider collecting and posting information on the weathering farms where the products are tested and/or intended regional markets to better inform the end user. The aged reflectance in each of the three climate zone weathering locations provides unique weathering input, as each climate zone tests a different characteristic of the roofing system.

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6	Weathering farms: Required weathering in all three zones	Objection to all stakeholders being required to test their products in each climate zone. All stakeholders and potential ENERGY STAR roofing product producers or sellers may not offer their products for sale in each climate zone. This puts an unfair and inequitable financial burden on those stakeholders who sell their products regionally while lowering the cost for national sellers. The end result of testing in all climate zones will result in either false or unscientific results of products since the average result will most likely differ from where these products are actually used.	EPA acknowledges that shade, among several additional variables such as geographic location and installation, may impact actual consumer energy savings. For purposes of ENERGY STAR qualification, EPA's intent is to choose a test method that provides accurate, repeatable, and consistent results such that products can be compared and evaluated by consumers under similar conditions. Consumer education will be important to helping consumers understand that results will vary based on region, location, and maintenance. EPA is interested in discussing with stakeholders how to better educate the end user regarding this point.
7	Weathering farms: Required weathering in all three zones	Stakeholder is of the opinion EPA should clearly state values achieved may differ based on geographic area of use.	EPA agrees it's important for consumers to understand consumers may achieve different energy savings than the reported values based on geography of use as well as other factors specific to each cool roofing project. EPA has the following disclaimer included on the ENERGY STAR Roof Products consumer webpage and will add the disclaimer to the product finder tool used by consumers to find ENERGY STAR models:  Although there are inherent benefits in the use of reflective roofing, before selecting a roofing product based on expected energy savings consumers should explore the expected calculated results that can be found on the Department of Energy's "Roof Savings Calculator" website at <a href="http://www.roofcalc.com">www.roofcalc.com</a> . Please remember the Energy Savings that can be achieved with reflective roofing is highly dependent on facility design, insulation used, climatic conditions, building location, and building envelope efficiency.
8	Fundamental element change	Stakeholder is of the opinion EPA should clearly define a fundamental element change instead of listing "such as base latex."	EPA is of the opinion defining fundamental element changes more precisely is complex given the variety of potential changes across various roof product materials. EPA would be interested in learning from manufacturers if there are delays in CB and/or EPA review of fundamental changes to determine if comprehensive guidance on assessing what constitutes a fundamental element is necessary. If it is determined comprehensive guidance on defining fundamental element changes is needed, EPA will update CB guidance documents.  EPA will continue to work with certification bodies to review and allow minor changes, such as base material supplier changes, to ENERGY STAR qualified products without retesting as long as the change will not impact solar reflectance or thermal emittance properties.

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9	Cleaning surfaces	Stakeholder is of the opinion EPA should allow the washing of panels prior to testing. The stakeholder is of the opinion that if a panel is tested after heavy, wind driven rainfall it is likely that there will be less dirt on the surface and the results would most likely differ from panels that are not tested after a heavy, wind driven rainfall. A more accurate comparison by product producer would be made if all panels were cleaned prior to testing.	EPA is of the opinion testing should only be performed on uncleaned samples since this is more representative of actual field conditions and provides consistent "worst-case" comparison across products. EPA is interested in any data that shows an issue for consideration under a subsequent revision.
10	Effective Date	Stakeholder suggests the revision is in effect four years after the ENERGY STAR Roof Products Version 3.0 specification has been finalized, allowing industry and potential new entrants to adjust to new and what may be evolving protocols.	Stakeholders have previously requested an effective date 3 years plus 6-9 months from date of specification finalization. EPA recognizes the unique testing scenario for roofing products and therefore has chosen an effective date that provides more than a full 3 years for weathering.
11	Accelerated aging	Stakeholder suggests that EPA include language in the ENERGY STAR Roof Products Version 3.0 specification to accept accelerated aging in the event DOE creates an accepted accelerated aging model.	EPA continues to be interested in an accelerated aged reflectance test method and will continue to monitor efforts by DOE and LBNL. Once final, EPA will review the test method and discuss with stakeholders whether to adopt within the ENERGY STAR program. If the test method is industry accepted and test results are compatible with that of existing ENERGY STAR test methods then EPA will consider adding it as an allowable option within the specification.
12	Stakeholder comments	Stakeholder is of the opinion any and all stakeholders and interested parties who make comments should have their company name, association, etc. clearly attached to all comments as listed in Energy Star authored documents.	The purpose of the note boxes provided within draft specifications is to summarize and provide additional background, context, and justification to the reviewer while reading through the draft specification. Additional supporting documents are provided for review by stakeholders who are interested in reviewing the more detailed comments (e.g., actual stakeholder comments posted to website and comment matrix document).
13	Weathering farms	Stakeholder applauds the shift to requiring three locations for testing aged reflectivity.	EPA appreciates stakeholder input on weathering farm required climate zones.
14	Reflectivity requirements: Solar reflectance index (SRI)	Stakeholder strongly encourages EPA to specify reflectivity requirements in line with leading building codes and voluntary incentive programs.	EPA concluded that establishing a national solar reflectance index requirement for ENERGY STAR qualified roof products is not appropriate at this time. EPA needs to better understand the impacts of emissivity on building energy use in various climates before attempting to include it within this specification; both for minimum requirements and alternative approaches (i.e., SRI). While buildings in warmer climates benefit from high emissivity levels, it is possible that buildings in colder climates would experience slightly increased energy use during the winter months and thus, a lower net energy savings as a result of using ENERGY STAR qualified [high emissivity] products.

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15	Thermal emittance requirement	Stakeholder encourages EPA to add a thermal emittance requirement since products with high solar reflectivity but low thermal emittance will stay warm because they hold onto the heat they absorb, not fulfilling the intent of the product to keep buildings cool and reduce their air-conditioning loads.	In lieu of a specification requirement, EPA addressed emissivity by requiring manufacturer reporting of results for inclusion on the ENERGY STAR qualified products list. This listing, as well as educational information regarding the benefits of emissivity, will help purchasers choose the ENERGY STAR qualified roof product that cost effectively saves the most energy for their individual climate needs.
16	Color family additional elements	Stakeholder requested clarification in EPA's Color Family Additional Elements test requirements.	EPA has added two tables to clarify Color Family certification requirements. The tables are intended to provide a more readable format for assessing Color Family Representative Elements and Color Family Additional Elements. Table 3 - Color Family Representative Elements Testing and Reporting Requirements and Table 4 - Color Family Additional Elements Testing and Reporting Requirements, have been added to section 4, Test Requirements.