



"Texas Shingle Recycling Programs"

**A Technical Webinar Presented by
ShingleRecycling.org and CMRA**

January 13, 2011

Questions and Answers Updated and Posted on/by February 14, 2011

Per Mike Gould, P.E., Mech-Const Team Leader, Air Permits Division, Texas Commission on Environmental Quality

1. **Q:** Could commercial roofing material be recycled? How?

A: "Yes. We don't currently authorize commercial roofing material to be recycled in hot mix asphalt plants. I am sure we will eventually look into the requirements to authorize commercial roofing material as well. However, EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M, Appendix A.1.A in part says: "The NESHAP does not cover roofing projects on single family homes or on residential buildings containing four or fewer dwelling units." So, authorization of commercial roofing material will trigger federal requirements and standards while specific residential tear-offs do not. Our thought was we could quickly authorize a substantial source of recyclable material without triggering federal requirements."

2. **Q:** Have you tested RAS in asphalt sealer?

A: "This question is best answered by industry or Texas Department of Transportation as it seems to relate to product performance rather than an environmental issue."

3. **Q:** Which asbestos test standards [lab testing methods] are used?

A: "The TCEQ doesn't specify the asbestos test methods needed. A lab test may not be required, but rather someone trained to identify asbestos containing shingles. I recommend contacting the Asbestos Program at the Texas Department of State Health Services (800) 572-5548 or www.dshs.state.tx.us/asbestos/default.shtm for specific test requirements and training needed."

4. **Q:** Have there been any concerns about odors and watery eyes when working manufactured or tear-off shingles during mixing and placement of pavement?

A: "The TCEQ's jurisdiction for air quality concerns starts at the manufacturing process property line, but does not cover the placement of the pavement. During the mixing of RAS into the asphalt mix we are requiring the material to be added a sufficient distance downstream from the combustion zone to prevent hot gas scorching and the RAS shall be shielded from the flame by a material dam or recycle collar. This is the same procedure and process currently required for using recycled asphalt pavement. The intent of these

procedures is to reduce the opportunity of blue smoke and odor. We are not aware of any off property odors as a result of using RAS.”

5. **Q:** For TCEQ and TDSHS: Has there been any testing of Naphthalene in air emissions from RAS? Are there (other) health and safety issues related to air emissions?

A: “The TCEQ has not done any testing for plants using RAS. After some degree of research, we don’t expect impacts on air quality since the composition of the shingles and that of the hot mix asphalt is essentially the same. Generally, RAS replaces materials of the same chemical nature already used in the hot mix process. That is, RAS material provides asphalt liquid and aggregate materials needed in a typical mix and to a certain extent replaces the need for virgin materials and reduces the percentage of asphalt liquid needed to be added to the mix. Additionally to help reduce the opportunity for foreign material not related to the shingle to get into the mix, there is a restriction on the amount of deleterious materials acceptable in a shingle load. The material cannot contain deleterious material in excess of 1.5% by weight. EPA identifies naphthalene emissions in the Hot Mix Asphalt Plants section (11.1) in their *Compilation of Air Pollutant Emission Factors* (AP-42, Fifth Edition). Background data provided for the emission factor development for naphthalene indicates the dryer fuel type may have more influence on naphthalene emissions than anything else. EPA’s test data also seem to indicate naphthalene emissions are not increased with the introduction of recycled asphalt pavement (RAP). RAS and RAP have similar properties and both replace virgin material in the mix to some extent.”

6. **Q:** Are there any health and safety issues and best practices for working with fiberglass? Are there any special protocols in place for handling shingles containing fiberglass?

A: “This question may more directly refer to worker safety in and around shingle handling. Worker safety considerations are typically addressed under the Occupational Safety and Health Administration (OSHA) rules. However in terms of off property air quality issues, the TCEQ requires that no off-property visible emissions occur from RAS storage piles; and requires the use of water sprays on stockpiles as abatement and preventative measures for fugitive emissions.”

7. **Q:** Are there any cases where the use of RAS has been discontinued because of odor nuisances?

A: “The TCEQ is not aware of any confirmed RAS odor nuisances from hot mix asphalt production.”

8. **Q:** Could we obtain the methodology and results of the stack testing, particularly for PAHs, that was done prior to approving the use of 15% RAS at facilities permitted to use RAP?

A: “The TCEQ has not been involved with any stack testing regarding the use of RAS.”

9. **Q:** How did the roofing industry respond when they had to start testing each re-roofing site for asbestos content? What incentive or obligation do they have to do this testing?

A: “We have not received any negative feedback from industry regarding the need for asbestos testing. However, more than likely some type of testing is required under the federal rules to determine the existence of asbestos-containing material regardless of whether the shingle is recycled or land filled.”

10. **Q:** Do workers notice a musty odor when RAS is included in HMA? What is the cause of this smell?

A: “This question is better answered by the industry as to what workers experience during the storing, handling and usage of RAS on-site. The TCEQ has not received any information regarding odor or as to any possible cause.”

Per David Morton, Quality Control Manager, APAC-Texas, Inc.

1. **Q:** Have you tested RAS in asphalt sealer?

A: “No.”

2. **Q:** Does it make sense to use RAS in cold patch mix?

A: “No.”

3. **Q:** How often would you suggest replacing the teeth of your shingles grinders? Also, what allow have you found are best for grinder teeth?

A: “About every 50 hours. We purchase our teeth direct from Roto-Chopper.”

4. **Q:** Does Texas find that the total AC in a mix with RAS is greater than a mix without RAS? If so, how much more?

A: “Equal”

5. **Q:** For APEC and TCEQ: Have there been any concerns about odors and watery eyes when working manufactured or tear-off shingles during mixing and placement of pavement?

A: “No odors or concerns from APAC that we have seen.”

6. **Q:** Are there any cases where the use of RAS has been discontinued because of odor nuisances?

A: “No.”

7. **Q:** Do workers notice a musty odour when RAS is included in HMA? What is the cause of this smell?

A: “RAP will make a musty odor but I have not notice a musty odor from RAS.”

8. **Q:** Did you say that Texas Stadium-Cowboy Stadium has RAS in the parking lot? Could be good promo thing to mention.
A: “Yes parking lot 4 was Warm Mix, 15% RAP and 5% RAS.”
9. **Q:** Does anyone know the grade of AC used in shingles either past or present?
A: “Some start with AC 5 but what it ends up I don’t know.”
10. **Q:** On average, where do you see the cost of RAS and RAP?
A: “RAS from \$25-\$30 plus haul, RAP \$0 - \$8.00 plus haul.”
11. **Q:** Does Oldcastle have a company wide initiative to grind RAS?
A: “No.”

Per Grant Wollenhaupt, Manager of Compliance & QA/QC, R2R Recycling “Asphalt Shingle Recovery Centers”

1. **Q:** Are there different specifications for cold weather states?
A: “Each state has their own specification for RAS but we haven’t found in correlation between requirements and latitude/temperature. “
2. **Q:** How often would you suggest replacing the teeth of your shingles grinders? Also, what allow have you found are best for grinder teeth?
A: “We aren’t in the grinding business so I can’t give this one a fair answer.”
3. **Q:** What are the deleterious requirements from other states?
A: “The states range from 1.5% to 5% allowable deleterious.”
4. **Q:** Are there any cases where the use of RAS has been discontinued because of odor nuisances?
A: “I have heard of problems like this but R2R hasn’t run into this problem. This comes down to the quality of the incoming material.”