

	Asphalt Roofing Manufacturers Association	
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Statement Responding to IARC’s October 20 Statement on its Reevaluation of the Potential Carcinogenicity of Asphalt and Asphalt Emissions in Roofing Operations

On October 20, 2011, the International Agency for Research on Cancer posted on its website a one-page statement (available [here](#)) that it has completed a reevaluation of occupations involving exposures to bitumen, the European term for asphalt. According to the statement, “occupational exposures to oxidized bitumens and their emissions during roofing” are classified in IARC Group 2A, “probably carcinogenic to humans.” The basis for this determination will not be fully understood until IARC publishes the complete Monograph on asphalt in a year or so.

Based on over twenty years of research dedicated to the safe use of asphalt in roofing, ARMA believes that IARC’s finding is at odds with the available scientific evidence. ARMA will fully address the basis for the IARC finding once the Monograph becomes available. However, we are concerned that, in the interim, the IARC statement may cause undue confusion and worry among workers, homeowners and others who use or may come in contact with asphalt roofing products.

IARC’s finding does not apply broadly to all exposures to oxidized asphalt; instead, its scope appears to be limited to roofing worker exposures in roof construction, removal and repair operations.

It is important to understand, first, that the IARC finding by its terms relates only to occupational exposures during roofing operations. It does not pertain to asphalt roofing products in-place on roofs, or to manufactured roofing products in stores or plant inventories. It also does not apply to rainwater runoff from roofs, roofing plant emissions, or to building occupants or others in the vicinity of asphalt roofing jobs. IARC has not made a broad hazard determination applying to all oxidized asphalt or emissions from oxidized asphalt. The conclusion, instead, appears to apply only to the exposures of workers to these materials in roof construction, removal and repair settings.

The scientific rationale for IARC’s finding is expected to focus on hot-applied roofing systems, which represent a small and declining part of the asphalt roofing industry.

Second, even in the occupational context we expect that the scientific rationale for IARC’s finding, when it is published in the full Monograph, will focus on exposures occurring during roofing jobs involving hot liquid oxidized asphalt. Roofing workers and

others should recognize that these operations, once dominant in low-slope commercial/industrial roofing, have seen a marked decline in market share since the 1980s and now represent a small part of the industry.

Today, 94% of asphalt roofing production is applied “cold” (i.e., at ambient temperatures, without heating), or is “soft-applied” using torches or hot air welders to heat the material sufficiently to ensure good adhesion to the substrate. For example, asphalt shingles dominate the residential roofing market in North America and are applied using mechanical fasteners (nails, staples). In addition, many different types of asphalt are used in the modern roofing industry, including straight run and air rectified (or “semi-blown”) asphalts. Cold- and soft-applied roofing products made from these types of asphalt, including many Modified Bitumen roof systems and saturated asphalt felts, do not appear to be included in the IARC determination, which addresses oxidized asphalt. A complete description of the broad range of asphalt materials and application practices used in today’s roofing industry can be found online [here](#).

The IARC announcement is consistent with the available scientific evidence indicating the lack of a significant cancer risk in asphalt roofing manufacturing plants.

Exposures to oxidized asphalts and their emissions can occur during the manufacture of asphalt roofing products, but the available scientific evidence does not indicate that asphalt fumes pose a cancer hazard to workers in these operations. Modern asphalt roofing plants are extensively automated facilities in which the emissions from hot liquid asphalt are captured and controlled. As a consequence, asphalt fume exposures in these operations are far lower than those found in the hot asphalt roof construction jobs that appear to be the focus of the IARC announcement. A summary of the extensive exposure data for both sectors can be found in the industry description document mentioned above.

Especially instructive is a 2002 Georgetown University study of Owens Corning manufacturing employees (abstract available online [here](#)), which found that asphalt fume exposures were not associated with worker mortality from lung cancer. In light of the methodological strengths of the Georgetown study, and the absence of other studies suggesting a cancer hazard for manufacturing workers, there is no scientific support for a cancer hazard finding in this sector of the asphalt roofing industry.

Based on the brief summary in its October 20 announcement, IARC’s finding that occupational exposures to oxidized asphalt in roofing operations are “probably carcinogenic to humans” appears to be inconsistent with the available scientific evidence.

Although we have at the moment only a glimpse of the scientific rationale for IARC’s finding, the brief summary IARC has provided to explain its finding appears to be at odds with the available studies of workers exposed during hot asphalt roofing operations. Specifically, IARC’s claim that the body of available data from studies of roofing workers “points to an association” between exposures and cancer lacks persuasive scientific support. In nearly every case the scientific validity of these studies

has been compromised by the inability to exclude the effects of other known carcinogenic agents that are entirely unrelated to asphalt but are often present in these study populations, including coal tar, asbestos and lifestyle factors such as tobacco smoking. The only two epidemiological studies that have not been undermined by these critical limitations have found no association between workplace exposures to asphalt fumes and increased risk of cancer in asphalt workers. While skin-painting studies in laboratory animals indicate that fumes generated during hot asphalt roofing application jobs are associated with weak tumor induction in mouse skin, well-conducted studies in humans generally are accorded greater weight by scientists and regulators.

ARMA has sponsored or supported a broad range of initiatives over the past twenty years in an effort to fill the gaps in the scientific evidence regarding the possible carcinogenicity of asphalt fumes and to identify measures to control workplace exposures to asphalt fumes. Substantial progress has been made in manufacturing plants, where industrial hygiene surveys reveal steep reductions in asphalt fume exposure levels since the 1980s. ARMA has also partnered with NIOSH, the United Union of Roofers, Waterproofers and Allied Workers and other industry groups to evaluate and disseminate information on available exposure control measures in hot asphalt construction operations. Additional information on these initiatives can be found in the industry description mentioned above (available [here](#)). ARMA intends to continue its vigorous efforts to ensure that the potential health hazards and risks of asphalt fume exposures to workers exposed in roofing manufacturing or application operations are well-characterized, and that effective programs are available to protect worker health.

Questions about the IARC announcement should be directed to ARMA Executive Vice President Reed Hitchcock, at (202) 207-1110, or via e-mail to RHitchcock@kellencompany.com.



The Asphalt Roofing Manufacturers Association (ARMA) is the trade association representing North American bitumen roofing manufacturing companies and their raw material suppliers. The association includes approximately 85 percent of North American production of bituminous roofing products. ARMA develops information and conducts research and development on bitumen roofing materials and practices; represents the industry in building code, standard product specification and regulatory matters; and serves as a voice for the industry in promoting its products and addressing other matters of common concern. For further information, consult ARMA's website (<http://www.asphaltroofing.org/>).