# **Behind Kingspan's Façade**

Concerns about quality control and product testing issues at Kingspan's Modesto QuadCore Factory

This cover photo from Kingspan's factory in Modesto, California was published on a Kingspan web-page titled 'What is Upcycling? <a href="https://www.kingspan.com/us/en/knowledge-articles/what-is-upcycling/#:~:text-Upcycling%20does%20not%20involve%20breaking.a%20new%20and%20better%20product">https://www.kingspan.com/us/en/knowledge-articles/what-is-upcycling/#:~:text-Upcycling%20does%20not%20involve%20breaking.a%20new%20and%20better%20product</a>

SHEET METAL | AIR | RAIL | TRANSPORTATION

#### KINGSPAN MARKETING LITERATURE



**Source**: 2022 Kingspan Insulated Panels Sustainability Report <a href="https://www.kingspan.com/us/en/">https://www.kingspan.com/us/en/</a> business-groups/kingspan-insulated-panels/2022-sustainability-report/?utm\_content-254694709&utm\_medium=social&utm\_source-linkedin&hss\_channel-lcp-3150520

#### PHOTOS OF PANELS MADE IN MODESTO





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Kingspan Group is a \$15 billion<sup>i</sup> building supply manufacturer operating in 80 countries, including the United States. It claims to be the world's leading producer of high-performance insulated panel building envelopes.<sup>ii</sup>

In 2020, Kingspan became embroiled in a scandal in the United Kingdom concerning deceptive fire safety practices and its mismarketing of one of its proprietary insulation products, Kooltherm K15.

In October 2022, we published a report on the evidence related to the scandal. Since the scandal broke, Kingspan has sought to distance itself from it by chalking it up to the past actions of a few bad apples. CEO Eugene Murtagh stated in February 2021:

The unacceptable conduct and historical process shortcomings, involving a small number of employees in our UK insulation boards business, do not reflect the high standards of integrity and safety that are core Kingspan values, deeply held by our people. We have already implemented several important changes that demonstrate our commitment to product compliance and good governance. Our aims are clear: to reassure that safety takes precedence over all other considerations and to ensure this can never happen again.

SMART has been exploring these claims. Our investigation has focused on Kingspan's factory in Modesto, California, where it manufactures insulated panels using QuadCore. iv

QuadCore is one of Kingspan's leading proprietary products. In 2022, sales of QuadCore showed year-over-year growth of 46%. Our investigation has consisted of a review of publicly available documents and interviews with Kingspan production employees who work at the factory.

The Modesto factory is a flagship facility for Kingspan — the company has invested \$23 million into it in recent years. Someone visiting the facility might be impressed with its Tesla charging stations and with the solar panels arrayed atop the largest of its three production buildings.

In 2021, Kingspan had the Modesto factory certified to ISO 37301 — a standard for compliance management systems. In 2022, Kingspan secured an Environmental Product Declaration (or "EPD") for QuadCore manufactured in Modesto. Modesto should be an exemplary case study of the strides Kingspan has taken to distance itself from the deceptive business practices that came to light in the UK.

The findings of our investigation are summarized below. We hope they will help interested onlookers assess for themselves whether the type of inappropriate business practices unveiled by the Grenfell Tower Scandal were the isolated workings of a small number of employees in the company's UK insulation board's business, as CEO Murtagh has claimed, or whether they are reflective of a broader problem that the company continues to face.

#### **KEY FINDINGS**

- 1. There is evidence that Kingspan has instructed employees to cover over hollow areas in its insulated panels. Insulated panels at times have come off the production line in Modesto not fully filled with insulation foam. Employees have told how they have been instructed by supervisors to cover over these hollow areas by inserting a small piece of cut foam into the end of the panel and then sanding the inserted piece to make it all look like one continuous piece of foam. This leaves internal hollow sections that are not visible. Employees describe this as a recurring situation. Photosof the panels prior to their being patched are enclosed. SMART makes no claim as to the effect, if any, this practice might have on the panel's performance or fire safety.
- 2. Kingspan sent QuadCore panels for fire and wind testing that were manufactured using a different process than what is described in its EPD. In March 2023, a set of panels was manufactured in Building 1 at Modesto using a production process that is different from what is described in Kingspan's QuadCore EPD. Every panel underwent Quality Control and several did not make the cut. These panels were not manufactured for sale. Rather, once finished, they were sent to a third-party agency in Rhode Island for fire and wind testing.
- 3. Kingspan's EPD for QuadCore manufactured in Modesto omits operations and contains environmental, health and safety claims that may be questionable. Despite being marketed as having a "cradle to grave" scope, the Modesto QuadCore EPD makes no mention of operations in two of the Modesto factory's three buildings where QuadCore panels are manufactured or finished. In these two buildings, employees cut insulation foam and metal sheets, glue and laminate them together, and then paint the panels. Employees describe the cutting as non-stop and it produces waste in the form of polyisocyanurate dust and metal shavings. In this regard, the EPD may be incomplete and offer an inaccurate picture of the company's environmental practices. SCS Global Services, the third-party verifier, told SMART that it is not required to (and did not) conduct site visits or audits of the data submitted by Kingspan. SMART submitted a formal complaint to SCS Global Services on January 22, 2024 regarding these omissions. SCS Global informed SMART on February 9, 2024 that it was opening an investigation into the allegations, to be concluded by May 2024. As Kingspan markets its EPDs, these seeming inconsistencies raise the question of whether the company's plaudits are deserved or amount to greenwashing.

"Being public is not a lot of fun. It's exposure. We are private culturally, but public owners from a funding perspective."

- Gene Murtagh, CEO of Kingspan



# Kingspan's Grenfell Tower Fire Scandal

Kingspan's Kooltherm K15 had comprised a small portion of the exterior insulating and cladding system on an energy efficient retrofit of the London Grenfell Tower, which burnt down in 2017 and took with it the lives of 72 inhabitants. Because of K15's use on the Tower, Kingspan was called before the U.K.'s Grenfell Tower Inquiry. The company turned over thousands of pages of internal company documents and its managers provided testimony on its business practices. The documents and testimony showed that:

- 1. Until October 2020, Kingspan continued to use a 2005 large scale fire test to market Kooltherm K15, despite the fact that Kingspan had introduced a new, more flammable, version of K15 in 2006.
- 2. Until revealed by the Inquiry in 2019, Kingspan kept secret four 2007–2008 fire tests involving this new version of K15 that had failed to meet the standard necessary to pass the test.
- 3. By early 2008, Kingspan managers and executives were aware of the "bad fire performance,"

fire test issues, and inappropriate marketing of the insulation, and they understood that the product risked not passing the appropriate fire tests for which Kingspan was actively marketing it.

- **4.** Kingspan relied on misleading safety certificates for K15 starting in 2009.
- 5. Kingspan relied on 2014 and 2015 large scale fire tests that, the inquiry revealed, had used altered, research and development", versions of K15 that were different from the version being sold.
- 6. For years, Kingspan issued misleading marketing literature and advice ("letters of suitability") to use K15 in configurations for which it was never tested, and in some cases, for which it had failed tests.

Testimony from high-ranking managers and executives demonstrated a company beset by what CEO Eugene Murtagh would later describe as "unacceptable conduct and historical process

Chalmers: "[K15] Doesn't actually get class 0 when we test the whole product tho LOL!"

Moss: "WHAT, We lied? Honest opinion now."

Chalmers: "Yeahhhh. Tested K15 as a whole — got class 1 [a worse rating]. Wheyy. Lol"

Moss: "Whey. Shit product. Scrap it."

Chalmers: "Yeah all lies mate" and "Alls we do is lie in here."

 From a 2008 WhatsApp chat between two members of Kingspan's K15 technical/ marketing teams



shortcomings, involving a small number of employees in our UK insulation boards business [which] do not reflect the high standards of integrity and safety that are core Kingspan values, deeply held by our people."

Fallout from the Grenfell Tower scandal cost Kingspan €5.4 billion in market value. The company desperately needed to turn the page on this ugly chapter. Accordingly, in February 2021, Murtaugh shared a number of steps Kingspan was taking to "underpin its clear commitment to proper professional conduct and safety," including a rigorous compliance and governance review conducted by an outside law firm; governance and management changes such as new fire testing and accreditation protocols and the publication of all BS 8414 test reports (pass and fail); a code of conduct based on the three core principles of

integrity, honesty and compliance; and new companywide infrastructure to ensure the accuracy of product information.<sup>vi</sup>

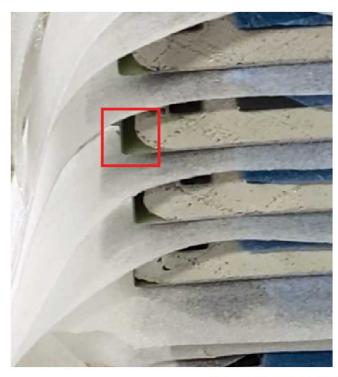
Around this same time, Kingspan moved to cement its status as a "green" manufacturer. In 2020 the company launched its Planet Passionate marketing campaign and then in 2023, it announced EPDs for QuadCore. Sales of QuadCore showed year-over-year growth of 46% in 2022.

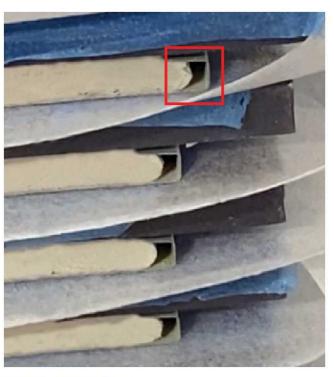
As part of its reform efforts, Kingspan began certifying its factories to ISO 37301—a standard which requires a company to have systems in place to ensure compliance with relevant laws and best practices. Kingspan chose its factories in Modesto, California and Deland, Florida to be its first in the world to certify. Certification in Modesto was achieved in 2021. The following events are alleged to have occurred after Kingspan implemented its reforms.

# **Employees Say They Were Instructed to Cover Over**

"There was this time that these panels (referring to the picture) were headed to Building 1, and many, many conveyors came out like that [with] many panels like that [picture]. So... they sent [to Building 1] all those panels just like that. And I don't remember if [the plant manager] OK'd them [on that occasion]. Because sometimes, when panels came out like... defective, and the imperfection is very visible, and then [a manager] comes directly to check them out, and he always says, 'Oh, that's OK. That's how they want them, the brand."

- Building 3 Employee





Hollow section of panel before it has been covered over

The QuadCore insulated panels Kingspan produces in Modesto are manufactured using the *continuous process method*. This method of production is described in its EPD:

The continuous process (see Figure 1) method is where metal facers (here referred to as external and internal steel sheets) are continuously formed while at the same time at another point on the continuous line, injecting the foam mixture into the panel assembly. The foam then expands and fills the cavity between the metal skins as they enter a platen conveyor. The panels are then trimmed and embossed following which the top and bottom edge details are profiled. The panels then go through a curing process and are then cut to standard or customized lengths. The panels are then cooled, stacked, and packaged for shipping.

This process occurs in Building 3, as it is referred to by employees. A diagram of the process from Kingspan's QuadCore EPD is reproduced below.

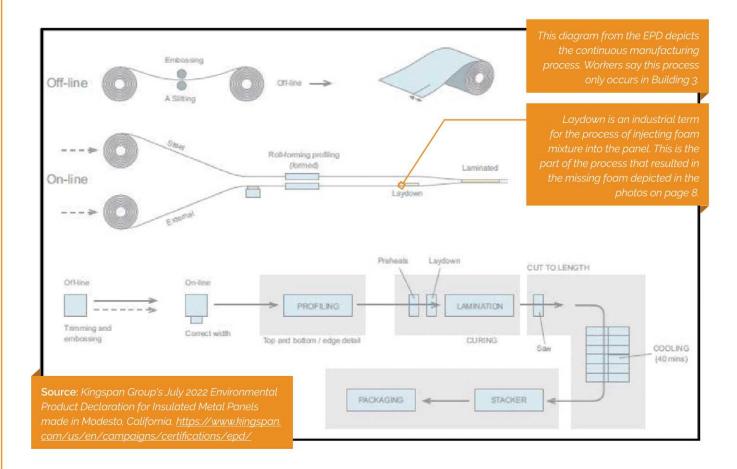
An illustration from Kingspan's QuadCore brochure, reproduced on page 10, shows what the end result of this process *should* look like. The metal skin with the blue and white marketing logo

is where the panel locks into another panel. The gray filling visible on the edge of the panel is the foam core. As marketed, the foam core *should* fill the entire cavity between the metal skins.

But employees at the Modesto factory report that the injected insulation foam does not always expand to completely fill the inside of the panel. They say this has happened several times and when Quality Control catches it, the factory's plant manager is summoned to decide what to do with the panel. But when production is fast, Quality Control does not always manage to check every panel.

Employee: "Sometimes, yes, it has happened ... that they checked each one of [the panels]. Because when, when one after another is coming out, sometimes one is good, two are bad, then they need to take them out to check them. Sometimes, where the work is coming out too fast, they only check the top panel.

When the issue is caught in Building 3, employees say that sometimes the panels have been rebuilt, but not always.



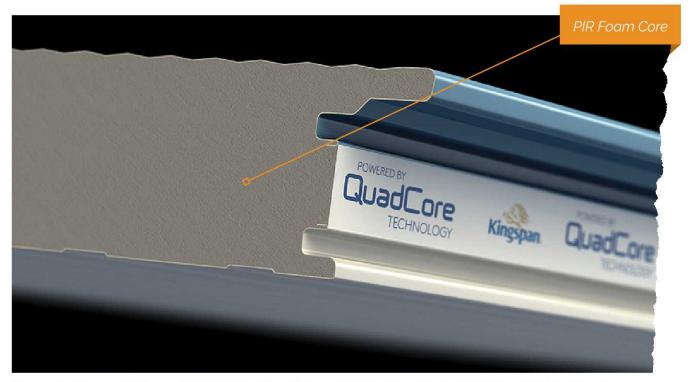


Figure 2: QuadCore product image from product brochure https://www.kingspan.com/content/dam/kingspan/kip-na/us-ca/documents/kingspan-quadcore-brochure-en-us-ca.pdf

**Employee:** "Sometimes they have, they have rebuilt them. And, some other times, they, yeah, they send them out. They send them to Building 1.

Employees in Building 1 produce panels that require customization, such as non-standard sizes or trimless ends. They sometimes receive injected panels from Building 3 to customize. One employee from Building 1 reports that it has been a recurring situation for panels to sometimes arrive from Building 3 that are not completely filled with foam because the foam does not reach the end of the



The DRV PNK stadium in Fort Lauderdale, Florida used Quad-Core panels. The stadium is home to a Major League Soccer club co-owned by David Beckham. Photo Credit: Felix Mizioznikov stock.adobe.com

metal form. This produces a hollow section visible at the edges of the panel.

When panels have arrived in Building 1 with these hollow ends, employees say supervisors have instructed them to insert small pieces of foam to cap the end of the hollow section, and to then sand the foam down so that it all looks like it is one continuous piece. No glue is used to secure the inserted piece.

The photo on page 8 was taken in 2023. It shows insulated panels with hollow portions that were sent from Building 3 to Building 1 for customization.

**Employee:** "So what we do, before we send it out, we cut pieces and just put them on the ends and kind of sand it to make it look like it's complete."

It is impossible to know how deep the hollow ends run without fully dissecting the panels. But employees believe they may run the panels' entire length because when they have pushed the cut pieces of foam into the gaps, the cut piece has continued into the panel until it "just disappears." Capping the end has the effect of disguising the unfilled gap inside the panel. SMART makes no claim as to the effect this practice might have on the panel's performance or its fire safety.

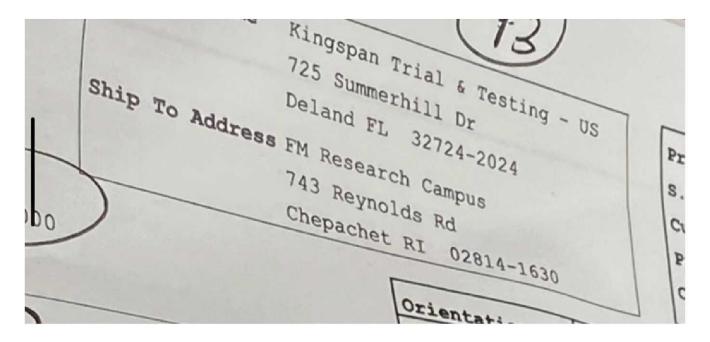


In March 2023, management instructed employees in Building 1 to manufacture a special set of panels for third-party testing. A supervisor explained that the company was going to construct a small house with the panels installed on it and then set it on fire, and if it passes the test, employees in Modesto would start making that Quadcore.

These panels were not manufactured using the continuous process method described in Kingspan's EPD for QuadCore. Rather, the employees say they received cured, rigid insulation boards that they cut precisely and sandwich between metal skins using glue. This process does not involve injecting a liquid insulation mixture that expands to fill the panel, and it has not been identified as producing gaps in insulation foam associated with the continuous process method.

According to employee reports, supervisors instructed employees to construct the panels with more care and to conduct quality control testing on each of them. Ordinarily, quality control is only done on certain panels in Building 1. This time all the panels were inspected, and several did not make the cut.

Employee: "They said we're making panels, and we're going to build a little house and set it on fire somewhere. And if it passes the test, then we're going to start making that foam in building 3... So, we just sent out those panels last week. They were 12-inch panels by 8 feet long. There were a bunch of them. There's still a bunch there, I'm not sure what went wrong with them, if they didn't glue them right or something? They didn't make the cut. But there's a bunch



that went out. And I asked them. Because we were doing the QC Iquality control! on them, and we had to do each one. Usually, it's not all of them we have to do the QC on. It's just certain ones. But those, there were 32 or 34 pieces that we had to make sure they were locked in right, that there were no gaps and stuff. And I said why is this so important. And he said oh because they are going to build a house, and set it on fire, and if it passes then we're going to start making that QuadCore in Building 3."

The Modesto factory already produces Quad-Core LEC panels. Kingspan is currently working to launch QuadCore 2.0 — an updated QuadCore formula marketed as having more recycled content. On its website, Kingspan reports that "the Quad-Core 2.0 insulated panel range is currently going through a further rigorous testing and certification programme, including reaction to fire and various insurer-backed standards. Once completed, the first products containing the new core are expected to be ready for market in 2023."ix

The shipping label on one set of these panels had a sender address of "Kingspan Trial and Testing — US" with the street address of Kingspan's U.S. headquarters in Deland, Fla. It is addressed to FM Research Campus in Rhode Island. FM Global is a testing and insurance company that performs product testing and certifies that products meet certain standards.

SMART makes no claim as to whether the specially constructed panels were filled with QuadCore 2.0 or what impact, if any, the manufacturing process and quality control checks that were used could have on the product's fire and wind testing.

"They said, we're making panels, and we're going to build a little house and set it on fire somewhere. And if it passes the test, then we're going to start making that foam in Building 3."

- Employee in Building 1



# Kingspan's QuadCore EPD for Modesto: Transparency or Greenwashing? Kingspan Modesto Site

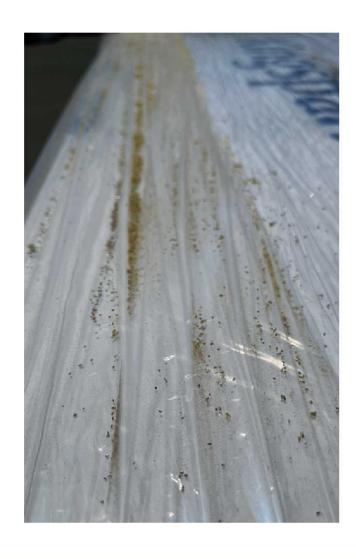
"Architects want to work with us because we provide the building materials they need to meet LEED certification requirements."

 Brent Trenga, Director of Sustainability North America, Kingspan Insulated Panels.xvii

New state and federal laws are incentivizing manufacturers to procure Environmental Product Disclosures (EPD) in an effort to reduce emissions from the built environment.\* For example, in September 2023 the Environmental Protection Agency announced \$100 million in grant funding to help manufacturers develop EPDs.\*i

EPDs are marketing materials, much like the certificates a manufacturer receives from a third-party fire testing agency. A company conducts a Life Cycle Analysis of its product, based on guidelines (called "Product Category Rules") governed by international standards. This process must be overseen by an "Life Cycle Analysis expert, but that expert is not required to be external to the company.\*ii The Life Cycle Analysis for Kingspan's EPD was conducted by WAP Sustainability, a consulting firm with the slogan: "Consider us your outsourced sustainability department." On its website, WAP states that part of its Life Cycle Analysis services include the "collection of raw material data to the disclosure level required in the IProduct Category Rules!.

The manufacturer takes the Life Cycle Analysis and sends it to an independent third-party verifier like SCS Global. The third-party verifier determines whether the calculations conform to the relevant Product Category Rules and publishes the



results.xiii But third-party verifiers are not required to audit the data underlying the Life Cycle Analysis, so the validity of the result depends on the completeness and accuracy of the data originally provided by the manufacturer.

Industry observers have noted the potential conflict of interest this can pose. Design professionals and academics who study environmental standards like LEED have raised the concern that "as soon as more manufacturers learn the rules of creating EPDs, they will find shortcuts or workarounds which may affect their quality."xiv

The opportunity for a manufacturer to be less than forthright about its environmental practices is matched by a financial incentive. EPDs in particular help manufacturers access green building markets. The use of products with EPDs can help a building owner achieve LEED certification, which can bring beneficial tax treatment.\*\* The competitive advantage of securing EPDs is particularly notable in the United States, where there are fewer available products with EPDs than in Europe's "more mature" market.\*\*

#### KINGSPAN'S EPD OMITS CERTAIN MANUFACTURING OPERATIONS

In February 2023, Kingspan announced its new QuadCore EPD for the Modesto factory. The EPD was issued by third-party verifier SCS Global Services based upon an LCA performed by WAP Sustainability.

A reader of the EPD would have sound reason to believe that it describes all aspects of the Quad-Core manufacturing process in Modesto. The Product Category Rule governing it states that "primary data shall be collected for *every process* in the product system." (emphasis added) SCS Global states that the EPD's scope is "cradle to grave, including raw material extraction and processing, transportation, product manufacture, product delivery, installation and use, and product disposal."xviii Brent Trenga, Kingspan Insulated Panels' Sustainability Director for North America, has emphasized the "granularity" of the data that was collected over 12 months to support the EPD.xix

But the EPD omits reference to aspects of the manufacturing process that workers describe as the most dirty and potentially hazardous. It describes the *continuous process method* of panel production that takes place in Building 3, where (as described above) isocyanate mixed with other proprietary chemicals is injected into sheets of metal and then expands to fill the cavity. But it does not describe the processes that take place in Building 1 or 2.

In Building 1, workers receive already cured and cooled insulations boards manufactured outside the building. They cut and laminate them onto metal skins using a special glue to produce

made-to-order, custom-sized panels, corners and other pieces of cladding. This production process involves more cutting of foam boards and metal than the *continuous process method* described in the EPD and produces more waste in the form of polyisocyanurate dust and metal shavings. It is also more labor-intensive and carries with it more employee exposure to insulation dust.

Employees report that when the production lines in Building 1 are running at their typical speed, the cutting creates so much insulation dust that the dust collector needs to be emptied every hour. It is emptied in a large metal bin in the same room. Employees know when the bag is full when the dust in the air becomes thicker and thicker. When the metal bin is full, the dust is dumped into an outside trash dumpster and taken to a landfill.

Employee: "They installed these blowers to clean us before we leave the plant. But it is still a problem because our eyes itch, our throats are irritated. We feel particles behind our ears when we are home."

Section 7.2 of the EPD states that "Iplersonnel working with panel cutting equipment should always wear respiratory and eye protection as per standard safety measure." But this section pertains to the installation of panels, not to their manufacture. The EPD does not address hazards associated with the manufacture of panels.\*\*

In Building 2, workers apply various types of paint finishes to panels, as well as other activities, but no mention of these finishes or their application to QuadCore products appears in the EPD. In November 2023, SMART sent a letter to SCS Global Services notifying it that the EPD failed to describe the manufacturing process in Building 1. SCS Global replied that "lals the EPD program operator, we followed the guidance of ISO 14025 to verify the [Life Cycle Analysis], its conformance to the Product Category Rule, and its accurate depiction in the EPD ... If you think the environmental impact reporting is inaccurate you could reach out to the LCA practitioner or Kingspan." In two prior conversations with SMART staff, SCS Global stated that it is not required to perform site visits or audit

the data Kingspan submitted. Its role is to verify calculations based on the data that manufacturers submit to it. SMART submitted a formal complaint to SCS Global Services on January 22, 2024 regarding these omissions. SCS Global informed SMART on February 9, 2024 that it was opening an investigation into the allegations, to be concluded by May 2024.

When SMART notified the LCA practitioner, WAP Sustainability, of the EPD discrepancy in January 2024, the firm stated "we will not be offering any comment on this and ask the you redirect questions to Kingspan."

#### CONCERNS ABOUT ENVIRONMENTAL, HEALTH AND SAFETY CLAIMS

The Modesto Quadcore EPD states: "Kingspan has established Environmental, Health and Safety programs to ensure all federal, state, and local regulations are met or exceeded." It gives no description of these programs. Between January 2020 and March 2024, Kingspan subsidiaries in the U.S. settled OSHA citations totaling 38 violations, including 12 serious violations, and total penalties of \$92,999. These included one serious violation at the Modesto facility issued in March 2024 for \$4050. Serious violations are ones that involve a realistic possibility that death or serious physical harm could result from the hazard created by the violation.

A week after CAL/OSHA conducted an unannounced inspection of the Modesto factory, workers gave management a signed copy of their complaint to show that they stood behind their claims. Two weeks later, one of the signers was terminated. SMART has filed unfair labor practice charges against Kingspan with the National Labor Relations Board alleging that her termination was unlawfully motivated. Readers can track the charge's progress at the NLRB website.

The Kingspan Light and Air factory in Santa Ana, where 22 safety violations were cited in 2022, was also found by environmental regulators to have committed seven violations of its industrial stormwater pollution permit following a complaint submitted by Kingspan employees. In May 2023, Kingspan entered an agreement with the Santa Ana Regional Water Quality Control Board to settle alleged "serious and chronic" violations of its Industrial General Permit. It agreed to pay a \$45,000 penalty.



Santa Ana Kingspan workers Lucas, left, and Jorge just before filing their complaint with Cal-OSHA on Oct. 15, 2021.



Readers of this report may be surprised to learn what Kingspan employees say about operations in Modesto. Perhaps you are an architect who must trust that the product you specify in a building is precisely the same product described in marketing materials. Or perhaps you were one of the "VIPs" who visited the facility in late June 2023. What you may not have been aware of is that employees say they were instructed to spend several days cleaning dust off of the floors and walls in preparation for the visit. On the day prior to the visit, a Kingspan manager is reported to have walked the factory sprinkling scented saw dust.

You may have viewed Kingspan's <u>promotional video</u> from April 2023, in which Director of Sustainability Trenga depicts the company's "Planet Passionate" operations in Modesto and shows three separate dumpsters with magnetic labels reading metal scrap, foam scrap and general waste. Employees tell a different story. They claim as recently as June

2023 that some supervisors continued to instruct them to place foam waste into the general trash. As for those labels, employees suggest they appear to them to have been like decorations for visitors.

Employee: "Then we have a dumpster out each door, and [the plant manager] had these magnets made up... It was planet passionate, metal goes here, foam goes here, waste goes here."

**SMART:** "Normally, doesn't foam just go in general trash?"

Employee: "Yeah, but this time they had them all lined up with these nice little magnets. We even cut coils to have metal stick out so they could see its just metal. So, they put on a good show."

**SMART:** "So, they were claiming that they were sorting waste."

Employee: "Yeah..."





Video stills from the Kingspan promotional video about recycling at the Modesto plant published April 2023 on YouTube. https://www.youtube.com/watch?v=NEru2l0HDDg

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The Modesto facility is owned by Kingspan subsidiary Kingspan Insulated Panels, Inc., one of the subsidiaries through which Kingspan does business

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#### XX

The EPD also refers to a Cradle2Cradle Material Health Silver Certificate which expires in October 2023. The certificate describes all of the ingredients in Quadcore as "problematic" except for .09% which is "considered unassessed due to unknown identity or lack of toxicity information." It further states that 13% of QuadCore by weight is made up of "highly problematic; targeted for phase-out" chemicals, and 86% is "moderately problematic, but acceptable for use."

Notes		



SHEET METAL | AIR | RAIL | TRANSPORTATION



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