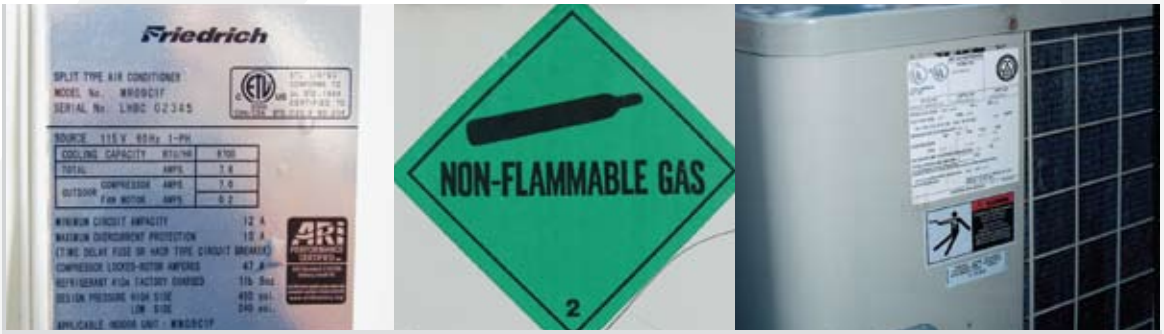
Providing Solutions in
Pressure-Sensitive Films

FLEXCON

WHITE PAPER

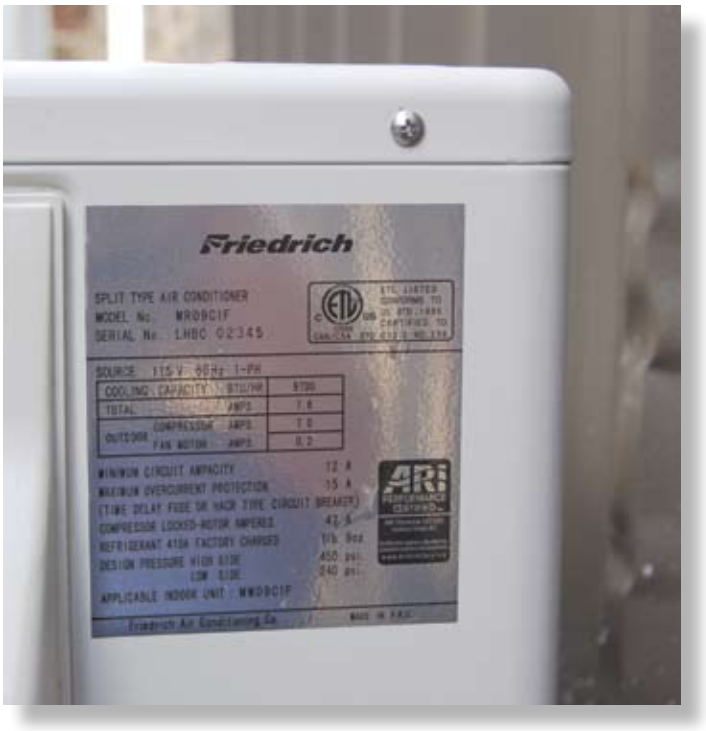


Making the Right Labeling Choices for Air Conditioning, Heating and Refrigeration

Proper Labeling with the Right Pressure-Sensitive Film Helps OEMs Improve Indoor Air Quality and Achieve LEED Compliance

Along with the goal of improving indoor air quality today's AHR professionals are also looking at supply chain cost reductions and being environmentally friendly. To this end, original equipment manufacturers (OEMs) are requiring new certification standards, including compliance with Leadership in Energy and Environmental Design (LEED), an international green building Rating System that signifies environmentally sustainable building design, construction and operation.

AHR professionals are also looking toward developing greener ventilation systems that are quieter, use less energy, and provide better filtration for healthier environments. Proper labeling can help OEMs meet these goals. The right labeling material can make the difference between an AHR system that helps keep people healthy and one which inadvertently contaminates the very air it is circulating. Further, the polymeric nature of the surface provides a particularly unsuitable breeding ground for molds. The surface is smooth, and offers no "food" or anchor for molds. OEMs who work with an experienced label substrate supplier can avoid possible pitfalls without incurring additional testing costs, and by tightening the design-to-market timeframe.

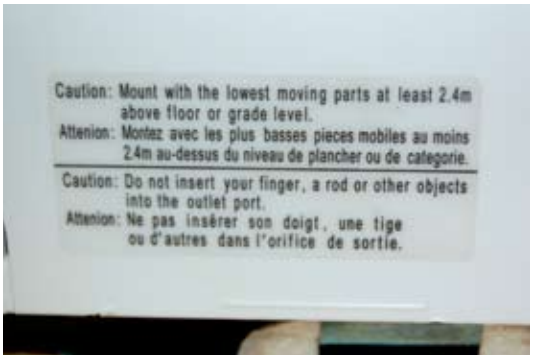


Examining Paper's Limitations

In the AHR industry, as well as other fields, LEED certification has become a primary focus. The LEED program is based around a building rating system developed by the United States Green Building Council, a nonprofit organization based in Washington D.C. When an AHR professional becomes LEED certified, it shows customers that he or she is meeting or exceeding exacting standards and is committed to providing environmentally sustainable building design, construction and operation. Certification can also mean access to government incentive programs, as well as acclaim for being green.

As with most AHR quality improvement efforts, the central focus of this effort is on improving air quality. This can be achieved by minimizing the likelihood of mold, air borne allergens, or bacteria within the AHR system and by utilizing new technologies to eliminate other potential contaminants.

Those contaminants can emerge from the unlikeliest of places. Take for example the prospect of a label as a potential breeding ground for mold. Molds are a versatile form of life, with some species able to survive a variety of temperature extremes. Although traditionally associated with dampness, some molds require minimal moisture for survival. Spread by spores, one of the main things mold needs to survive and thrive is an appropriate surface.

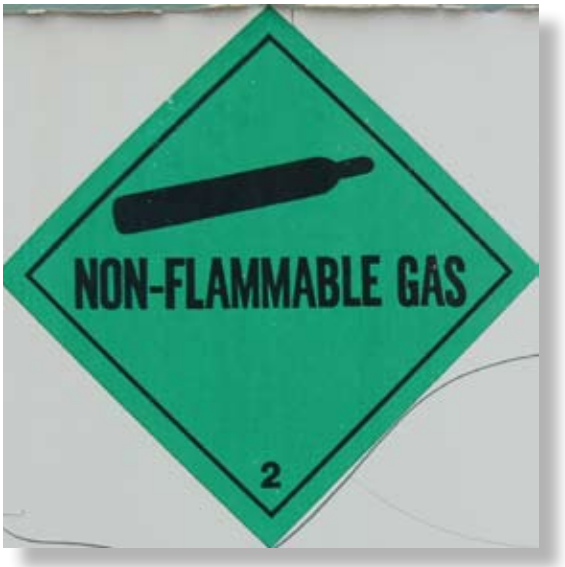


Paper provides a very hospitable environment for mold. Given its porous nature, paper absorbs ambient water from the air. Its rough surface also offers a good foundation to which mold anchors. Some molds may be particularly attracted to papers that are backed with organic adhesives. Given that the label is porous, the adhesive too may become food for future spores.

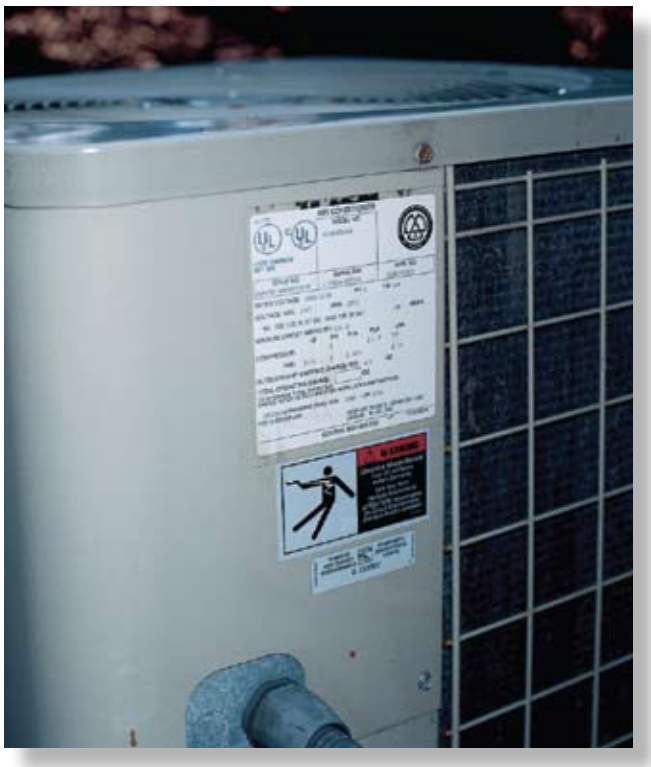
In addition to potentially causing air quality issues, paper labels may suffer deterioration as a result of exposure to mold. If the label becomes illegible, or if its adhesive fails, the results can be devastating for the OEM. Such labels often feature safety warnings, circuitry diagrams, or other important consumer information. In this case, OEMs may face a loss of consumer confidence in the product, or, in a worst case scenario, liability concerns. Despite this, paper labels have been traditionally used in air handlers and coils.

Pressure-Sensitive Film Provides Solutions

Pressure-sensitive films offer a healthier and more effective alternative. The flexible nature of pressure-sensitive film – both literally and figuratively – gives design engineers limitless possibilities in meeting rigorous AHR requirements. In many cases, the wide-ranging characteristics and potential of pressure-sensitive film can address AHR concerns before they even occur.



One of the reasons that pressure-sensitive film is so versatile may be found in the fact that it is a "sandwich" comprised of four layers of widely varying material components – film, adhesive, topcoat, and liner – that can be infinitely combined to best meet the needs of specific applications. Specifically, the AHR industry can utilize the inherent characteristics of pressure-sensitive film labeling as a powerful counterpoint to traditional paper labeling. Still, care must be given to selecting the appropriate substrate.



There are a myriad concerns that can arise if the wrong labeling material is selected. Problems such as poor print quality or production slowdowns can occur during the printing of the bar-coded labels. During end-use, the label graphics can fade due to wear and tear, abrasion, moisture, or UV exposure, which can result in flawed scans and inaccurate readings of the Data Matrix symbol. The label can tunnel, flag, or peel before the marked item's lifespan is complete, defeating the purpose of the "cradle to grave" AHR. In order to minimize total product risk a label material assessment task should be included in any product contract book / go to market plan.

The Right Marking Choice

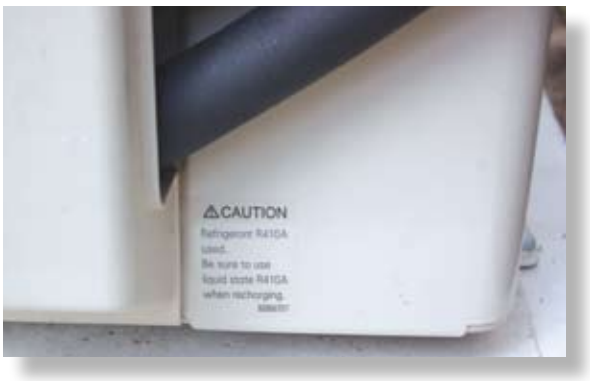
The majority of AHR applications can be successfully handled via thermal-printed or thermal transfer labeling, even in circumstances where environmental stresses are moderately challenging. The other primary method is flexographic printing.

While data plates carrying the AHR may be plastic, metal, or similarly hard material, a pressure-sensitive polymeric film offers the best option for an AHR label. Pressure-sensitive (self-adhesive) polymeric films have distinct advantages over paper, including significantly greater durability, coupled with exceptional printability via thermal transfer for both human- and machine-readability of the symbol and its embedded information. The variety of films, including vinyl and polyester, and adhesives allow a label to be precisely matched to the application requirements.

Establishing Performance Requirements

When seeking a labeling solution that will perform to the AHR standard, the label material supplier can provide an appropriate labeling product only when he understands the specific performance requirement for the label. It is therefore imperative that the procurement manager or other responsible party make sure that the specifications are known and defined up-front. These factors include:

- Expected lifespan of the item being marked;
- Environmental conditions the label and marked item will face during the product's lifetime, such as UV exposure, abrasion, chemicals, extreme heat, extreme cold, and cleaning agents;
- The nature of the surface (rough, smooth, metal, wood, low surface energy plastic, etc.) to which the label must adhere;
- The dispensing process by which the AHR label will be affixed;
- State, federal, or industry specifications beyond LEED requirements that the label must meet;
- The printing process being used to produce the AHR label (most common is thermal transfer, although other print technologies may be employed).



When discussing AHR label needs with your label materials supplier or your printer, the more detailed information you can provide, the greater the likelihood of the proper labeling material choice and thus the success of the label in meeting requirements. The goal is to optimize the solution to meet the requirements and lower both the risk of the product and the total cost of ownership.

Choosing the Right Supplier

Whether you are planning to work directly with a label material supplier or indirectly through your label printer, there are certain characteristics to look for in a label material supplier that will maximize your chances for success. The right supplier will:

- Offer off-the-shelf labeling products that are pre-tested on specific surfaces to assure the necessary durability and other performance characteristics;
- Provide data on the expected performance of each product on those surfaces;
- Create one-of-a-kind custom labeling products if your application requirements are unique. Your AHR labeling application may, for example, require affixing a label to an unusual surface in terms of texture, material, and/or curved shape, or may require reliable performance in unusually harsh conditions involving abrasion, moisture, or cleaning solvents;
- Offer scalability/flexibility to meet your changing business and operational requirements and to provide the most cost-effective solution, recognizing that many suppliers are in competition for AHR products and cost considerations are of increasing importance;
- Contribute to the lowering of your Total Cost of Ownership (TCO) of the product and the Total Applied Cost (TAC) of your supply chain; thereby effectively lower the total overall risk and cost of the AHR product;
- Meet your product's Lifecycle Statement of Objectives (SOO) and Key Performance Parameters (KPPs).

Experienced pressure-sensitive film suppliers are ready to work with AHR professionals to help guarantee their success in the marketplace. These suppliers are prepared to offer labeling materials that will help manufacturers reduce their design timeframes, provide more enduring markings, and help guarantee the overall success of AHR products. By providing suppliers with all of the performance requirements, members of the AHR industry will be able to breathe a little easier when it comes time to label their products.

About the Author

Ken Koldan joined FLEXcon in April 2008. He focuses on providing FLEXcon's expertise and product solutions to design engineers and economic buyers within the Consumer Electronics, HVAC, Security, and Appliance markets.

Ken was previously at a Fortune 100 corporation where he served as Director of Business Development and gained extensive experience in strategic planning and new market development. Throughout his career, Ken has held a variety of roles, including Engineering Manager, Program Manager, and Systems Engineer. He has worked in various industries ranging from Theoretical Physics to Banking and most recently in Mission Critical Wireless Communications.

Ken holds an MBA from Keller Graduate School of Management at DeVry University and a Bachelor of Science degree in Electrical Engineering from the University of Illinois. He also holds Project Management Professional (PMP) certification from the Project Management Institute.

About FLEXcon

FLEXcon is an ISO 9001:2008 worldwide manufacturer of pressure-sensitive films and adhesives for applications including indoor and outdoor advertising, bonding/mounting, and product identification, safety, hazard, bar-coded, and primary labels. The company's Value-Better-Supreme (VBS) product offering is the most extensive standard product offering in the pressure-sensitive film industry. FLEXcon is also a leader in developing custom solutions to meet unique converting or application needs. FLEXcon's mission is to provide its customers the highest quality products with exceptional service. The company is headquartered in Spencer, Massachusetts, and has operations throughout North America and Europe, with distribution worldwide. For more information on FLEXcon, visit www.FLEXcon.com.

Let's Talk Solutions

Bring your challenges or next big idea to FLEXcon and we will work together to find a solution. Call us at (508) 885-8200 or visit our website at www.FLEXcon.com.

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