Northwest Coatings

TECHNICAL BULLETIN

UV/EB ADHESIVES & COATINGS

TB-11

Skin Irritation from UV/EB Curable Products

INTRODUCTION

In general, the raw materials used to produce UV/EB curable coatings have low systemic toxicity, but they do have the potential to cause irritation upon direct contact with the skin and eyes. For this reason, suppliers of UV/EB products recommend the use of personal protective equipment including gloves and safety glasses in any situation where there is a potential for direct contact with the liquid product. The details of our recommendations for safe handling may be found in Technical Bulletin TB-03. In addition, your Northwest Coatings Sales Representative can provide training on the safe use and handling of these products.

DRAIZE METHOD FOR TESTING SKIN IRRITATION

One method used to appraise the potential for skin irritation is the Draize Method. This test is performed on shaved, intact and abraded skin of New Zealand albino rabbits by measuring the irritation score after 24 and 72 hours of contact. The results are numerically expressed on a scale from 0 to 8. The value obtained for each material is known as the Primary Irritation Index (PII).

PII-numbers are not exact values, however, and should not be treated as physical data. Tests on the same material, either within or between laboratories, often yield significantly different results. This variation results from the many problems associated with in the evaluation of results from animal studies.

It is preferred to use PII-numbers to classify materials according to their potential for skin irritation. A typical classification scheme is as follows:

PII-numbers	Classification
0	Non-irritating
0 – 2	Mildly irritating
2 – 5	Moderately irritating
5 – 6	Moderately to severely irritating
6 – 8	Severely irritating

Draize Method testing is usually conducted by independent, specialty laboratories. Typical fees range in the thousands of dollars per submitted sample. Due to the large number of UV/EB formulations that are available, most coating and adhesive manufacturers find it fiscally prohibitive to conduct Draize testing on individual products. As an alternative, the potential for skin irritation for a formulated coating or adhesive may be estimated by examining the Draize information provided by raw material suppliers. Based on the information provided by our suppliers, the irritation potential of our UV/EB curable products would be estimated to be mild or moderate skin irritants.

SKIN IRRITATION VERSUS SENSITIZATION

Skin sensitization is a potentially more serious problem than irritation. Sensitization is a chronic allergic response condition which can increase in intensity with repeated exposures to the sensitizing chemical. It should be noted that Draize testing and PII-numbers do not provide a measure of the tendency for a material to cause sensitization. All acrylate monomers, regardless of there potential to cause skin irritation, are potential sensitizers.

(overleaf)

7221 S. 10th Street ● Oak Creek, WI 53154 ● Tel: 414-762-3330 ●Fax: 414-762-9132 ● www.northwestcoatings.com

SKIN IRRITATION VERSUS SENSITIZATION (cont'd)

Fortunately, only a small fraction of the population has a natural tendency toward sensitization. Even among these individuals, sensitization can often be prevented by avoiding initial direct contact with the UV/EB products. Once a person becomes sensitized, even incidental contact with the sensitizing chemical must be avoided.

CONCLUSIONS

Draize testing and the resulting PII-numbers provide information that can indicate a general classification regarding the potential for skin irritation. Draize testing alone does not provide a measure of the overall safety of a UV/EB product.

UV/EB coatings and adhesives are industrial products that should be handled using appropriate control measures including personal protective equipment. These control measures have proven to be very effective. Tens of millions of pounds of UV/EB coatings and adhesives have been used by Northwest Coatings customers over a period of 20 years with less than a handful of reports of skin irritation.

Proper industrial hygiene is recommended for any type of ink, coating, or adhesive. We welcome the opportunity to assist in the education of your employees with regard to the safe use and handling of our products.