



## The Icynene Insulation System<sup>®</sup>

### CERTIFICATION SUMMARY

#### **CERTIFICATION STATEMENT**

The Icynene Insulation System<sup>®</sup>, produced by Icynene Inc., is certified under the *Envirodesic*<sup>™</sup> Certification Program as a suitable insulation where Maximum Indoor Air Quality<sup>™</sup> is preferred.

#### **SCIENTIFIC BASIS FOR CERTIFICATION**

The *Envirodesic*<sup>™</sup> certification file for The Icynene Insulation System<sup>®</sup> is based primarily on tests conducted by the Saskatchewan Research Council, Saskatoon, Saskatchewan, Canada, described in SRC Report No. I-4801-9-C-94, May 1994. These tests identified volatile organic compounds emitted by the insulation, using gas chromatograph/mass selective detector analysis under Procedure B of the CGSB Standard CAN/CGSB-51.23.92. Specimens were taken from a test panel after a 24-hour cure period, and offgassing measurements were made after 30 minutes in a 0.33 litre headspace chamber and for 1 hr. and 2 hr. durations at periodic intervals (1 hr., 12 hrs., 1 day, 2 days, 4 days, 7 days, 14 days, and 30 days) in a 51.2 litre dynamic test chamber.

The tests identified specific offgassing products in the headspace test immediately following the 24-hour cure, and tracked the reductions in concentrations of these and various additional offgassing products in the dynamic chamber tests over time. The results simulate the indoor air concentrations of volatile organic compounds which may result in a typical 500m<sup>3</sup> house with a ventilation rate of 0.3 ac/h, given full exposure of the insulation to the indoor air.

In the dynamic chamber tests, several series of offgassing products were observed, all of which declined in concentration to 0.05 mg/m<sup>3</sup> or less within 14 days, and to less than the detection limit of 0.003 mg/m<sup>3</sup> within 30 days. Both these levels are well within the Molhave limit of 0.16 mg/m<sup>3</sup> of total volatile organics being used presently as the upper limit of the benign range for the general population by the *Envirodesic*<sup>™</sup> Certification Program.

#### **ADDITIONAL SUBJECTIVE INFORMATION REGARDING ENVIRONMENTAL HYPERSENSITIVITY**

Preliminary feedback from subjective testing of partially and fully offgassed insulation samples by select researchers and other individuals knowledgeable about the effects of extremely low chemical emissions on environmentally hypersensitive individuals indicates that The Icynene Insulation System<sup>®</sup> may be suitable for use in installations designed for environmentally hypersensitive individuals.

#### **CONCLUSIONS REGARDING EMISSION LEVELS**

The volatile organic compound measurements confirm that emissions from The Icynene Insulation System<sup>®</sup> are well within a range considered benign for human exposure, within a two-week airing period. In addition, after a 30-day airing period, The Icynene Insulation System<sup>®</sup> is considered likely to be suitable for persons who may be more hypersensitive to chemical exposures than the general population. In cases of severe chemical sensitivity, individual testing of the individual's sensitivity against aged insulation samples is considered advisable to confirm the suitability of The Icynene Insulation System<sup>®</sup> and the air-out time required under these circumstances.

#### **SUITABILITY FOR NEW CONSTRUCTION**

The creation of a tight air barrier is extremely important in low-indoor-pollution construction, to ensure control over intake and exhaust air. Combining its low offgassing characteristic after the air-out period with its efficient air-tightening properties, The Icynene Insulation System<sup>®</sup> is considered highly suitable for new building construction where Maximum Indoor Air Quality<sup>™</sup> is preferred, even for buildings to be occupied by individuals with moderate to severe chemical hypersensitivity. A 30-day period of ventilation following installation is advised to provide full airing. This is usually well within common construction timetables.

#### **SUITABILITY FOR RENOVATION**

The Icynene Insulation System<sup>®</sup> is also considered suitable for retrofit situations where Maximum Indoor Air Quality<sup>™</sup> is preferred, and where environmentally hypersensitive occupants are present. For retrofit situations, an airing period of two weeks is advised for the general public, with any modification of the airing time depending on the tightness of the air barrier. The time may need to be increased to suit any occupants who may be environmentally hypersensitive.

A handwritten signature in blue ink, appearing to read "Bruce M. Small", is positioned above the printed name and title.

Bruce M. Small, P.Eng., Director  
*Envirodesic*<sup>™</sup> Certification Program

***Envirodesic*<sup>™</sup> Certification is an ongoing process whereby additional data and consumer experience is added to a product file as it becomes available. Persons wishing to examine further details of the file or wishing to ask questions about the test methods or the suitability of the product for different populations are invited to contact the *Envirodesic*<sup>™</sup> Certification Program at any office below.**