



4335 Leary Way NW, Seattle, WA. 98107- USA

(800) 420 - 2998  
Tel: (206) 782 - 8399  
Fax: (206) 782 - 7532  
Email: fbl@protek-usa.com  
Sales@protek-usa.com



**Ceramic Reflective Insulating Coating Systems for ROOFS, WALLS, TANKS & SILOS**



## **REDUCING SOLAR HEAT GAIN WITH CERAMIC COATINGS**

Ron D. MacDonald, P.Eng., Mark Armstrong, P.Eng., and Brian Fritz, Undergrad Student  
Agviro Inc., 367 Gordon St.  
Guelph, Ontario. N1G 1X8

### **For presentation to the CSAE/SCGR-NABEC Meeting at AIC2001**

University of Guelph, Guelph, Ontario, Canada  
July 8-11. 2001

#### **Abstract:**

A ceramic paint coating was applied to the roof of a finisher barn room at the Arkell Swine Research Station. Temperatures were measured on the underside of the steel, in the attic space, at an air inlet to the room itself as well as outside ambient temperature and relative humidity. Measurements were taken through the late summer of 2000 and in the winter of 2001. Results clearly indicate that the ceramic coating resulted in virtually zero heat gain during day light time periods and in addition, kept the surface temperature close to ambient outside air when the adjacent untreated roof surfaces lost heat on clear nights from the black body effect. Results of the trial, during August and September of 2000, indicated that the radiant barrier effectively held the inside surface temperature of the roof sheathing to close to ambient, while the untreated sheathing had temperature rises of as much as 17 EC. Radiant ceramic barriers effectively reduced attic gains. Ceramic paint appears to be an excellent method of eliminating solar heat gain on production barn roofs. Further testing is required to evaluate the effects of age and dirt accumulation on the roof surfaces.

**Keywords:** radiant barrier, heat stress