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Circle No. 10

INDUSTRY AND TECHNOLOGY Manufacturing Technology Assistant Professor

Full-time, tenure-track beginning August, 2001. Primary responsibilities will be for undergraduate and graduate combined lecture and laboratory courses in production materials and processes, processing metallic materials, and contemporary metal manufacturing technology. Develop and implement relevant laboratory activities for assigned courses. Participate in scholarly pursuits and relevant professional associations. Additional responsibilities will include student advisement, curriculum development, laboratory management, intern supervision, and department and university committee assignments. Opportunity: Contribute to the development of modern manufacturing technology laboratories during the construction of a Center of Excellence for the study of industry and technology. Required: Completed doctoral course work and approved dissertation topic (doctorate completed by November 1, 2002); earned baccalaureate degree in industrial technology, technology education or a related area; primary strengths in metal technology, CNC, CAD/CAM, and CIM with supporting competencies in polymers, ceramics and wood; three years professional experience in manufacturing technology; ability to conduct and supervise scholarly activities; proficiency in applications of information technology; commitment to serve diverse populations; ability to work cooperatively with colleagues and a successful interview and teaching demonstration. Preferred: Documented teaching or training effectiveness, completed doctorate and industrial experience. Full consideration given to applications received by 3/1/2001. Send letter of application, curriculum vitae, copies of all undergraduate and graduate transcripts, and three current letters of recommendation to: **Dr. John Hibberd, Search Committee Chair, Department of Industry and Technology/TD0101, Millersville University, P.O. Box 1002, Millersville, PA 17551-0302. Phone: (717) 872-3326; Fax: (717) 872-3318; E-mail: itec@millersville.edu** An EO/AA Institution.

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Circle No. 11

technology TODAY

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Smart Windows

A fiery explosion just outside of a jet fighter pilot's canopy would blind the pilot if it wasn't for smart glazing materials that instantly change transparency to match changing environmental conditions. Nonmilitary use of this same technology is now found in smart glass arc-welding face shields and automatic automobile day/night mirrors.

Self-dimming glazing materials are not all created using the same technology. This column will explore Suspended Particle Device (SPD) technology, developed by Research Frontiers Incorporated of Woodbury, NY (www.refrspd.com). If you wish to explore other aspects of electrochromism and electrochromatic dimming technology, go to windows.lbl.gov/ and www.corning.com/sunsensors/naeindex.htm.

The transparency of SPD glazing materials changes in reaction to a change in electrical voltage, affecting suspended particles sandwiched in a middle layer of film in the glass. A flow of voltage to this film layer opens light valves that allow welders and other technicians in eye-damaging environ-

ments to perform setups while looking through a fully transparent glass. When the light conditions change, such as the striking of an arc, the light valves instantly darken the glass to provide

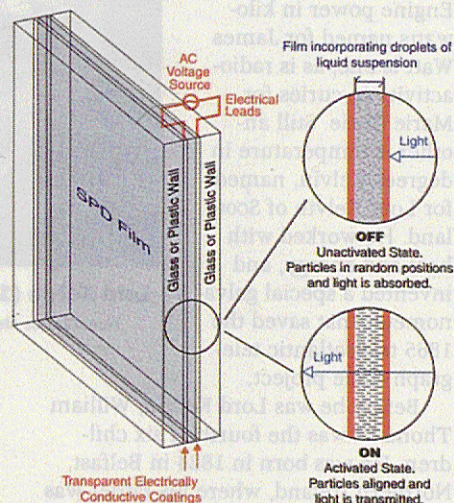


Fig. 1—How SPD glass works.

Photos and illustrations courtesy of Research Frontiers Inc.

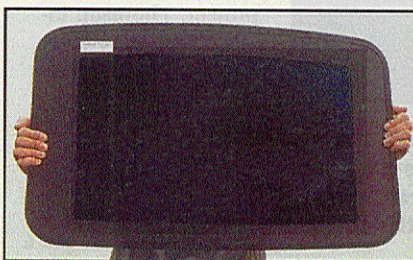
proper eye protection. A power failure renders the glass dark, rather than clear, which means that a dead battery doesn't expose workers to eye damage.

Cars equipped with SPD automatic day/night mirrors darken automatically when voltage to the mirrors' liquid suspension layer lessens. Mirrors darken when exposed to sun glare or glare from another vehicle's headlights.

Research Frontiers' breakthroughs in film development now make it possible to produce SPD smart glass at a reasonable cost. You will soon see SPD made into skylights; residential, commercial, aircraft, and automobile windows (except for the front windshield); e-book pages; flat and CRT displays; and even eye and ski glasses. ☺



The transparency of SPD glazing materials changes from crystal clear to fully dark in reaction to a change in electrical voltage.



Recalling the Facts

1. What causes SPD smart glass to darken?
2. Why wouldn't you want this glass as the front windshield of your car?
3. What are some of the major advantages and/or disadvantages of using this glass in most window products?