Photograph not available.

Ice-fighting personnel are constantly learning new techniques and equipment operations. (Photograph courtesy of Jane's Information Group)

De-icing and Anti-icing Are Major Safety Factors in Winter Operations

by
Robert A. Feeler
Editorial Coordinator

It is considered common practice for a flight crew to ensure that the aerodynamic surfaces of an aircraft are free of frost, ice or snow prior to flight. The disastrous accident of Air Florida Flight 90 at Washington, D.C., U.S., in January 1982 caused in part by ice and snow on the wings, focused renewed attention on the critical importance of proper de-icing and anti-icing of aircraft. Even after the Air Florida accident, other

accidents and incidents have occurred which also could have been averted if the aircraft had been properly prepared for flight.

The Association of European Airlines (AEA) led the industry in efforts to develop standards for the fluids, methods of application and equipment to be used in de-icing and anti-icing ground operations by issuing its first document in 1982. Since that time, the *AEA Recommendations for De-/Anti-icing of Aircraft on Ground* document has been revised and is now in its sixth edition. The U.S. Air Transport Association (ATA), the Aerospace Industries Association (AIA), the Society of Automotive Engineers (SAE) and the major airframe manufacturers have issued guidelines or are working on specifications to improve the understanding and use of safe, efficient materials and methods of de-icing and anti-icing aircraft.

The fluid formulations are changing, the application equipment is improving and every season brings new developments to airports worldwide; extensive information is currently available on the subject. The aviation mechanic is usually the individual assigned the responsibility to properly carry out de-icing or anti-icing operations, and should be aware of the various factors affecting successful completion of preparation for flight in winter weather conditions. This discussion will highlight some of the recent developments in this field of knowledge.

The Technician Needs An Awareness of Several Factors

In addressing ground de-icing and anti-icing, technicians need to be cognizant of:

- Characteristics and capabilities of various types of fluids used in de-/anti-icing;
- Application methods and precautions;
- Health hazards associated with de-icing and anti-icing fluids; and,
- Environmental concerns associated with runoff and disposal of de-icing and anti-icing fluids.

Characteristics and Capabilities of Fluids Are Explained

All fluids currently used for de-icing and anti-icing are formulated from a glycol alcohol, either an ethylene glycol or a propylene glycol.

Although both glycols are basically similar in their ability to lower the freezing point of water, the two are vastly different in other ways.

Ethylene glycol-based (EG) fluids pose a safety hazard to users because the fluid is toxic to humans if its vapors are inhaled in sufficient amounts. The U.S. Occupational Safety and Health Administration (OSHA) has established a recommended exposure limit for spray or mist conditions. Technicians involved in the use of EG-based fluids should review the Material Safety Data Sheet (MSDS) provided with the fluid [in the U.S.] and should take proper precautions when participating in operations that involve this fluid. Most operators recommend that personnel involved in application use approved respiratory protective masks. EG fluids are also considered very harmful if ingested, and can be lethal to humans at 1.5 grams per kilogram (2.2 pounds) of body weight.

Propylene glycol-based (PG) fluids do not pose a health hazard to users because they are designated as Generally Recognized as Safe (GRAS) for direct addition to food by the U.S. Food and Drug Administration (FDA). As such, PG-based fluids are not subject to OSHA or hazard-reporting regulations at this time.

Both EG and PG fluids are biodegradable using normal sewage treatment plant methods. Some localities and authorities, however, have established specific requirements pertaining to prevention of runoff and drainage of used fluids to prevent their seeping into groundwater sources or sewage systems. The U.S. Environmental Protection Agency (EPA) and similar agencies in areas of Western Europe have promulgated very strict requirements pertaining to this problem.

Type I , Type I 1/2, And Type II Fluids Are Defined

To properly understand the characteristics of the various types of fluids, the following are definitions of a few key terms:

De-icing is a procedure by which ice, snow or frost is *removed* from the airplane by applying hot water or a hot mixture of water and de-/anti-icing fluid.

Anti-icing consists of the application of an anti-icing fluid or a mixture of anti-icing fluid and water to the airplane to protect against the accumulation and adhesion of ice, snow or frost to airplane surfaces *before the condition exists*.

Holdover Time is the estimated in-

terval during which anti-icing fluid will prevent ice, snow or frost from forming or accumulating on the treated surfaces of an airplane. The amount of protection time is dependent upon the weather conditions and fluid mixture selected, and cannot be precisely pre-determined for each application. The effective protection time must ultimately be based upon current conditions and close inspection of the treated surfaces.

Two Step De-icing is the application of a diluted, heated mixture of fluid to remove the accumulation of precipitation or frost, followed immediately (within three minutes) by an application of an undiluted or strong mixture of anti-icing fluid proportionate to the ambient temperature.

One-step De-icing is the application of a mixture proportionate to the ambient temperature to remove minor accumulations of precipitation or frost, leaving a coating of fluid to provide holdover protection. This method is applicable only if very minor accumulation has occurred and when takeoff will be immediate. One step de-icing is not advisable under conditions of heavy precipitation.

All currently available de-icing and anti-icing fluids are categorized worldwide according to a type classification, as follows:

Type I — unthickened fluids, intended for de-icing use. These fluids can be used undiluted or mixed with water (aqueous solutions), heated or cold. Type I fluids have very limited ability to prevent additional freezing and the holdover time is relatively short. Type I fluids can be EG or PG-based glycols, and usually are the least costly of available fluids of their type.

Type I 1/2 — a somewhat thickened fluid, currently available only in Canada. This fluid is used in a manner similar to Type II fluids (below); however, it has a shorter holdover time. A major point with the Type I 1/2 is that some manufacturers have approved its use on commuter and other aircraft having a takeoff rotation speed of less than 85 knots indicated airspeed (IAS). Technicians should confirm that the airframe manufacturer has approved the use of Type I 1/2 fluid on the specific aircraft involved before using it.

Type II — an EG- or PG-glycol based fluid with thickening agents and inhibitors added to provide superior holdover time. These thickening additives allow the fluid to adhere to the surfaces and form an insulating blanket between the aircraft skin and falling precipitation. The fluid is specially formulated to "shear" and flow off the surface on the takeoff roll to provide a clean aerodynamic surface prior to liftoff.

An important limitation for the use of Type II fluids is that the aircraft must have a takeoff rotation speed in excess of 85 knots IAS, in order for the fluid to separate and flow off properly. Some aircraft manufacturers have special recommendations relative to flap settings, V-speeds or maximum weight adjustments when the airplane is treated with a Type II anti-icing fluid. Technicians using Type II fluids should discuss these limitations with the pilot-in-command if there is any question as to the suitability of the fluid to be used.

Mixing, Heating and Application Are Important Considerations

Either Type I, Type I 1/2, or Type II fluid can be used for de-icing. Type I is the one most commonly used because it has the lowest cost and is effective. It is usually applied in an aqueous solution.

The mixture ratio usually is stated as the percentage of glycol first, then the percentage of water. For example, a 60/40 mixture would contain 60 percent glycol by volume with 40 percent water by volume. Some operators may have different policies in regard to the mixture, however, and at least one U. S. airline reverses the ratio and states the water content first. The important point for technicians to know is which standard is used by the operator in question, and to assure that the mix being applied is exactly what is required for the ambient conditions.

The water need not be specially treated to soften it because the glycol fluids are formulated to accommodate normal hardness found in municipal drinking water supplies.

The mixing proportion between the fluid and the water is strictly a function of the ambient weather conditions, and the mixture must be closely monitored to ensure that the expected degree of protection is attained. An automotive anti-freeze hydrometer is not appropriate. The most common method used in the field is by use of a refractometer, a device that allows a small sample to be quickly checked to determine the ratio of glycol to water. When using a refractometer (sometimes referred to under the trade name of Duo-Chek), the technician should keep in mind that the unit has temperature scales for either EG- or PG-glycol fluids.

As a rule of thumb, the freezing temperature for a Type I mix used for the de-ice step of the two-step procedure may be as much as 13 degrees F (seven degrees C) *above* the ambient temperature. For the second step, or anti-icing application, the freezing temperature of the mix

should be at least 18 degrees F (10 degrees C) *below* the ambient temperature.

For Type II fluid application, similar rules apply; however, the mixture ratios are normally limited to 50/50, 75/25 and 100/0, with each ratio being applicable to a range of temperatures. Tables detailing the correct ratio for each range of ambient temperatures are provided by the fluid manufacturers and are also included in the AEA specification.

Heating greatly increases the effectiveness of any fluid when used for de-icing. All fluids have been formulated to withstand normal heating temperatures of 160 to 180 degrees F (71 to 82 degrees C). De-icer unit tank temperatures normally are maintained at 140 degrees F (60 degrees C) in the standby mode, and then heated to the higher temperature at the time of application.

Heating of aqueous solutions tends to evaporate the water when they are kept heated for long periods. The mixture ratio must be checked frequently to assure that the fluid applied meets the desired minimum freeze point.

Application methods have been greatly refined over the past few years with most of the newer units providing selectable mixture ratios and dual tanks for application of different mixtures with a single dispensing unit. Operators must select spray nozzles that are properly designed to provide adequate pressure and even distribution regardless of the flow rate selected.

Adding thickeners to Type II fluids results in the need for some special requirements for pumps and nozzles on the dispensing units. In order to remain effective, Type II fluid should not be pumped or dispensed through equipment not specifically designed for it. It is not feasible to merely refill an old dispensing unit with the new fluid; it may be necessary to replace de-icer dispensing units or at least modify existing ones if the operator elects to change over to Type II fluids. Specific pumps and nozzles are manufactured for use with Type II fluids.

Many Factors Impact De-icing and Anti-Icing Effectiveness

Among the factors that can have an effect upon the effectiveness and the holdover time of de-icing and anti-icing operations are:

- Ambient temperature;
- Aircraft surface temperature;
- Presence of previously applied

de-icing fluid;

- De-icing fluid aqueous solution (mixture ratio);
- Precipitation type and rate of accumulation;
- Application procedure;
- Relative humidity;
- Solar radiation;
- Operation of adjacent aircraft (jet blast, etc.);
- Wind velocity and direction;
- Snow, slush, or ice on taxiways and runways; and,
- Aircraft component inclination and contour.

Each of the above factors must be considered in determining the mix, method of application, and timing of the de-icing or anti-icing operations in order to assure that the airplane arrives at the end of the runway truly "ready for takeoff."

Be Aware of Local Restrictions on Drainage and Runoff

Various regulatory agencies have issued regulations pertaining to the prevention of runoff or drainage of de-icing and anti-icing fluids that may apply regardless of whether the fluid is EG- or PG-based. Technicians should be aware of any restrictions and should comply with them.♦

References

Saddler, David B., Christopher Tobler and AGEM staff, special deicing section, *Aviation Ground Equipment Market*, Jane's Information Group, October 1991.

Recommendations for De-/Anti-icing of Aircraft on Ground, 6th Edition, September 1, 1990, Association of European Airlines.

UCAR Aircraft Deicing Fluids, Union Carbide Chemicals & Plastics Co. Inc.

Aircraft Winterization-1991, Maintenance Training Department, USAir Inc.

Compact Disc Maintenance Data May Be The Wave Of the Future

Compact Disk read-only-memory (CD-ROM) optical disc information management methods were demonstrated in October at the Air Transport Association (ATA) Engineering and Maintenance Forum for airline executives and managers in San Francisco, Calif, U.S. The use of CD-ROM technology for rapid search and retrieval of aircraft maintenance text and graphic information is claimed to solve many of the problems associated with accessing such information in microfilm, microfiche and paper manuals.

The CD-ROM technology is applicable to personal computers and can be used to store vast amounts of text, diagrams or photos in an extremely compact format. Already in use by several major airlines, publication of maintenance manuals and illustrated parts catalogs on CD-ROM disks has proven to be a giant step forward.

With the combination of optical disc storage and search and retrieval software, users are able to find needed information with a few strokes of the keyboard. According to C.R. Gray, senior vice president of Maxwell Data Management Inc., "Comparative tests on the hangar floor have shown that experienced maintenance staff are able to find needed information 95 percent faster using CD-ROM, compared with traditional microfilm and paper storage-retrieval systems. Even newer staff can save half the look-up time with this new technology."

CD-ROM systems have been developed and tested with British Airways, American Airlines and United Airlines during the past five years. "The CD-ROM system goes right to the desired information … . We offer multiple search options, right down to a word, phrase or even a part number," said Gray.

Sophisticated indexing and computer linkages allow the user to quickly flip back and forth between appropriate sections. Text and graphics may be displayed simultaneously, and a zoom feature makes it easy to inspect detailed portions of selected illustrations, if desired.

Further work is underway to enable temporary revisions to be incorporated into the current CD-ROM files. Major revisions are accomplished by

replacing an obsolete disc with a revised disc. Work copies of selected pages can be printed subject to the availability of printer output units.

Aviation EXPO To Be Held in March 1992

Aviation EXPO 92 will be held at the Orlando Convention Center in Orlando, Fla., U.S., March 25-27, 1992. The international aviation maintenance and support equipment trade show was formerly known as AMTECH.

More than 250 exhibitors are expected to display their products that will cover all facets of aviation maintenance and ground support activities. In addition, several discussion panels during the conference will address issues of vital interest to the airline and repair station maintenance fields. Technicians who have suggestions for topics or specific issues they would like to see discussed are invited to suggest subjects for discussion.

For additional information or to submit a topic for discussion, contact Aviation EXPO, Andry Montgomery & Associates Inc., 6100 Dutchmans Lane, 6th Floor, Louisville, KY 40205 U.S. Telephone (502) 473-1999.

NDI Courses Offered

The American Risk Management Corp. (ARM) is conducting several training courses in infrared thermography non-destructive inspection (NDI) techniques. These courses cover various applications of this emerging NDI method and course designations include:

- *Preventive/Predictive Maintenance for Facilities.* This course is designed for anyone involved with planning, implementing, and managing preventive/predictive maintenance programs. All types of infrared instruments will be available for hands-on inspections of various exhibits available in class.

- *ASNT Level I and Level II Infrared Thermography.* This course is designed to meet the general training requirements of the American Society of Nondestructive Testing (ASNT) for Level I and Level II certification in the infrared/thermal method. It will cover the basic and intermediate physics needed to understand and apply infrared thermography, the knowledge needed to operate the equipment, and applications training to learn how to gather and analyze the data. Exams based on sample questions from

ASNT tests will be given.

Courses listed for 1992

January 20-24 Dallas, Texas
Preventive/Predictive Maintenance

February 17-21 Atlanta, Ga.
Preventive/Predictive Maintenance

March 30-Apr. 3 Cleveland, Ohio
ASNT Level I Infrared Thermography

May 11-15 Atlanta, Ga.
Preventive/Predictive Maintenance

June 15-19 Dallas, Texas
Preventive/Predictive Maintenance

July 20-24 Sacramento, Calif.
Preventive/Predictive Maintenance

August 17-21 Cleveland, Ohio
ASNT Level I Infrared Thermography

September 21-25 Atlanta, Ga.
Preventive/Predictive Maintenance

October 19-23 Dallas, Texas
ASNT Level II Infrared Thermography

For more information, contact Donna Tvorik or Terrie Bilek at (800) 788-7475 or write to American Risk Management Corp., One Independence Place, Suite 500, Cleveland, OH 44131 U.S.

Tire Manufacturers Release Warning on Static Electricity

The Rubber Manufacturers Association (RMA) recently released a bulletin cautioning aircraft servicing personnel to not rely on tires to dissipate static electricity from aircraft.

Although tires have some conductivity, the RMA Bulletin states that under certain circumstances, such as refueling operations where the buildup of static electricity is of concern, it is important that mechanical means always be used to ground the aircraft. The RMA warns technicians: "Do not rely on tires to dissipate static electricity." ♦

This information is intended to provide an awareness of problem areas through which such occurrences may be prevented in the future. Maintenance alerts are based upon preliminary information from government agencies, aviation organizations, press information and other sources. The information may not be entirely accurate.

Scored Skin Results In Failure of Pressure Bulkhead

A Lockheed L-1011 TriStar experienced a rapid loss of cabin pressure while in cruise at FL370. Although the cabin altitude exceeded 20,000 feet for almost a minute, no passenger injuries other than a few headaches were reported.

Investigation disclosed that a triangular section of the rear pressure bulkhead had ruptured and folded out, allowing the cabin pressure to be dumped. The rear pressure bulkhead was a thin shell structure comprised of a series of 0.040-inch-thick panels lap-jointed to form the spherical bulkhead, with additional doublers and anti-tear strips. It was found that a fatigue crack had progressed through a section of the pressure bulkhead, following the edge of one of the doubler panels. Upon reaching a critical length, the crack ripped and turned a corner at an intersecting doubler, allowing the skin flap to bend and dump the pressure.

A detailed analysis disclosed that the fatigue crack began at a score mark in the skin. This scoring on the skin surface precipitated the fatigue crack in a circumferential path which grew to a length of 18 inches. The crack then turned the corner at the doubler and progressed rapidly or ripped during the blow-out event. Microscopic examination of the fatigue fracture region revealed clear evidence of a score line on the aft face of the bulkhead panel between the doublers.

The scoring had evidently been produced by some form of tool which had been drawn along the edge of the doubler at some point in the manufacturing process.

The U.S. National Transportation Safety Board (NTSB) has documented other similar instances of failure in pressurized fuselage structures. In each instance, the defect had initiated at a surface mark or scoring that created a localized stress concentration which resulted in a fatigue crack.

Technicians involved in the manufacture or repair of structural components must take care to not scratch

or score metallic surfaces in the course of their work. The use of a metal scraper or putty knife in applying or cleaning off paints or sealants should be avoided.

A scriber, scratch awl — or even a pencil — should never be used to mark pressurized fuselage skin panels. A soft, felt-tip marker would be less apt to scratch the surface.

Faulty Maintenance Causes Fuel Farm Fire

A major fire that destroyed three fuel storage tanks and three million gallons of jet fuel at Stapleton International Airport, Denver, Colo., U.S., has been attributed to the failure by the fuel farm operator to detect a loose motor in a pumping unit. The U.S. National Transportation Safety Board (NTSB) took responsibility for this investigation because of the potential impact on aviation safety and the number of issues involved, such as the proximity of the fuel farm to the airport facilities. It was the first time that the NTSB has investigated such an accident not involving transportation of people or goods.

There were no injuries or fatalities, but airline operations were disrupted as the fire burned for two days in the fuel storage area that is located less than two miles from the passenger terminal area. Total damage is estimated to exceed $15 million.

As a result of its investigation, the NTSB determined that the fuel farm operator failed to detect loose motor bolts that allowed a pumping unit to become misaligned, causing the fuel subsequently to leak and ignite. Also cited as contributory factors were the failure of the operator to properly train its employees in the maintenance and inspection procedures for the fuel farm, and failure of the local authorities to properly oversee the fuel farm.

The NTSB made recommendations suggesting that the U.S. Federal Aviation Administration (FAA) review and clarify its regulations pertaining to fuel tank farms and to require airport certificate holders to be responsible for inspections of such facilities located on airport property.

Crash Investigation Focuses on Missing Screws in Tail

An Embraer Brasilia turboprop commuter aircraft crashed during September near Eagle Lake, Texas, U.S., killing all 14 passengers and crew members on board. Although initial reports from witnesses indicated that an in-flight explosion may have occurred, the U. S. National Transpor-

tation Safety Board (NTSB) has stated that there appears to be no evidence of a bomb or incendiary device. However, the agency confirmed that the aircraft was on fire when it impacted the ground.

The NTSB found that 43 screws had been left out of the top left side leading edge of the horizontal stabilizer. Investigation disclosed that the leading edge had been removed to replace the de-icing boots. Embraer told the NTSB that the loss of the part could cause serious control problems. The left wing and the left engine had broken free from the aircraft in flight, according to the NTSB.

A preliminary review of the flight data recorder (FDR) and the cockpit voice recorder (CVR) has been completed and, according to the board, there were no indications of problems nor did the crew make any reference to trouble. There were no distress calls. Both recorders were found to have ceased operating prior to impact.

Winter Temperatures Could Increase "Blue Ice" Problems

American Airlines recently published an article in its *Maintenance Newsletter* to remind technicians of the importance of proper leak checks of external lavatory and potable water servicing and drain ports on aircraft. Blue stains streaking the fuselage from these servicing panels are evidence that leakage may be occurring. When the blue-tinted water from these sources leaks out of the aircraft in flight above freezing levels, blue-tinted ice forms, clumps of which can break off and be ingested by aft-mounted engines. This is always a safety threat in jet aircraft that normally fly in the higher, colder altitudes, but it can be more of a problem when winter weather brings freezing levels down and increases the exposure of aircraft to blue-ice formation.

There have been many instances of blue-ice chunks falling from aircraft. One well-publicized incident occurred several years ago when a house near an airport was "bombed" by a 60-pound piece of ice that crashed through the roof and ended up in the kitchen where it dented the floor. It was discovered that this missile had originated from an airliner's leaking lavatory drain fitting.

An even greater safety hazard exists when potential leak sources are located forward of the engine intake or leading edges of the wings and stabilizers; tail surface leading edges have been dented and engines have been severely damaged by hard ice chunks. Technicians must take special care in

evaluating reports or evidence of leakage or other defects such as:

- Inoperative drain mast heaters;
- Leaking potable water system drain valves;
- Potable water system fill and overflow valves;
- Toilet tank drain valve leaks; and,
- Leaking toilet service panel drain caps.

If any ice buildup or indication of leakage is noted during a walkaround or periodic inspection, technicians should troubleshoot and correct the leak prior to the next flight. Otherwise, they should empty and deactivate the source of the leak.

Smoke and Flames In the Cockpit

A European operator experienced an incident that occurred in one of its Boeing 737 aircraft during cruise when smoke and flames appeared at the upper left corner of the captain's windshield panel. Left forward windshield heat was quickly switched off, and that solved the immediate problem.

Investigation after landing disclosed that a washer near the windshield heat connection was too large, and the O-rings used in the same assembly were of the wrong type material. Subsequent operation was normal after the proper parts were installed.♦

NEW PRODUCTS

Walk Safely and Protect the Environment, Too

Keeping in step with the environmentally conscious times, Koos Inc. has introduced a new container for its Safe Step Ice Melter product used to clear walkways. The 12-pound-size jug is designed for ease of use, and is manufactured from 100 percent recycled milk jugs. It features a wider, easier-to-grip handle with an adjustable spreader cap.

The manufacturer claims that the Ice Melter product will not harm plants or concrete when used as directed. Because the product dissolves completely, it leaves no residue to stain shoes or carpeting, and resists tracking into buildings.

The company produces other winter safety products such as Safe-Grip

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Traction granules which are designed to provide adhesion on ice and snow, and Safe Step Airport Ice Control. For more information, contact Koos-Shore, 4500 13th. Court, Kenosha, WI 53141 U.S. Telephone (800) 558-5667.

Special Packaging of Lubricants Eliminates Contamination

Syon Corp. has introduced a line of specially packaged aircraft oils and lubricants which, because of their built-in nozzles, eliminate the potential for contamination associated with the use of permanent funnels that can accumulate foreign matter during repetitive use. Each product is packaged in a plastic nozzle pack which is easy to store and is not opened until ready to dispense into the system.

The specialty oil packs are offered in 4-, 9-, and 16-ounce sizes that are consistent with the normal requirements for servicing aircraft systems. Each pack is sealed and has a self-contained nozzle, so that the fluid can be dispensed directly without the use of any additional funnels, spouts or servicing equipment. The maker states that the flexible nozzles minimize spills and ease maneuvering in restricted spaces.

The heavier grease products are packaged in 1/2 oz. packs convenient for individual one-time usage. Various products are supplied off-the-shelf, and additional products can be cus-

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tom packaged to user requirements upon request.

For literature and pricing information, contact Syon Corp., 280 Eliot St., Ashland, MA 01721 U.S. Telephone (508) 881-8852.

Paving Blocks Keep Floors Clean and Safe

A line of interlocking rubber flooring blocks has been introduced for use in machine shops, cleaning rooms or other areas where fluids are often present on the floor. The Kaswell Inter(B)lock Paver is a molded rubber flooring material that features a dog-bone shape which interlocks to remain in place and can be installed without adhesives. The paver is claimed to be durable, shock-resistant, slip-resistant, and unaffected by fuel or water. The manufacturer states that the flooring blocks cannot shrink, buckle, warp or crack.

Available in a variety of colors, the paver blocks can be sawed or drilled to accommodate machinery or obstructions and are suitable for use indoors or out. Each individual block is 1-3/4 inches thick and it requires approximately 3-1/2 blocks to fill a one-square-foot area. The blocks are stable from minus 40 degrees C to plus 90 degrees C and exhibit a 0.64 dry and 0.79 wet coefficient of friction.

Literature and samples are available upon request from Kaswell & Co. Inc., 58 Pearl Street/P.O. Box 549, Framingham, MA 01701 U.S. Telephone (508) 820-0841.

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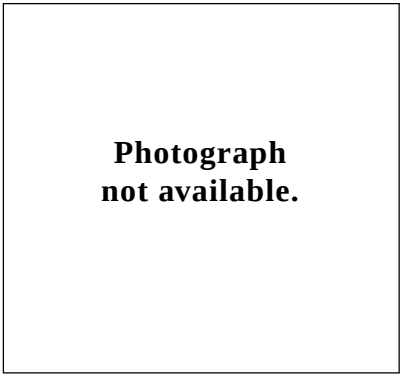
Electrostatic Circuit Board Damage Can Be Reduced

Electrostatic discharge can ruin expensive printed circuit boards during rework and repair. Chemtronics Inc. claims it can eliminate this risk with its product named Soder-Wick, used to facilitate desoldering of components on printed circuit boards.



The product is available in two forms; Soder-Wick Fine Braid and Soder-Wick Ultra Braid. Both are intended to provide protection against harmful static discharges during desoldering operations involving sensitive circuit boards and components.

Made of oxygen-free copper wire, braided in a unique geometric pattern and specially cleaned in a proprietary process, Soder-Wick is said to offer exceptionally high thermal conductivity with minimum heat transfer to the components or the board. Braids are available in nine widths ranging from 0.022 to 0.210 inch. The desoldering braids are designed for ease of use, and the manufacturer claims they provide a convenient aid to vacuum desoldering techniques.

For information, contact Chemtronics Inc., Soder-Wick Products Division, P.O. Box 1448, Norcross, GA 30091 U.S. Telephone (404) 424-4888. ♦