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Research Triangle Park NC 27711

Research and Development

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Project Summary

SAGE for Windows (WSAGE) Version 1.0 Solvent Alternatives Guide User's Guide

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The guide provides instructions for using the Solvent Alternatives Guide (SAGE) for Windows, Version 1.0. The guide assumes that the user is familiar with the fundamentals of operating Windows 3.1 (or higher) on a personal computer under the DOS 5.0 (or higher) operating system.

SAGE for Windows provides recommendations for solvent replacements in cleaning and degreasing operations. The system leads the user through a questions-and-answer session. Based on the user's responses, a list of alternative chemistries and processes is derived. The user may then review brief descriptions of the alternatives on the computer screen. Any of the information may be printed. The information includes general information, safety/environmental concerns, economic information, and industrial case studies for the alternatives. The system also provides information on state technical assistance programs for the user's geographical location.

This Project Summary was developed by EPA's National Risk Management Research Laboratory, Air Pollution Prevention and Control Division, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Overview

In 1992, the U.S. EPA initiated a program to design a computer to assist in the selection of low-polluting industrial surface cleaning alternatives. The objective of the program was to make the identification of cleaning options simple, yet based on the latest technical and economic feasibility information available. This objective could be most easily accomplished using a computer-based expert system format. The resulting system, called SAGE (for Solvent Alternatives Guide), uses the speed and capability of the computer to evaluate a large number of operating parameters and conditions to identify the most viable surface cleaning option for most industrial cleaning requirements. The SAGE for Windows software joins the family of SAGE software programs that also includes DOS, Macintosh, and World Wide Web versions.

The first BETA test version (1.0) of SAGE was released in May 1993. The initial versions were DOS based and designed for use by a 286 level personal computer (PC). Subsequent versions of the SAGE system have increased its minimum system requirements to a 386 level PC. Since its release, SAGE has become one of the most widely used cleaning process identification and design tools used by industry. Over 50,000 copies of the various PC versions of SAGE have been released through the various government bulletin board systems, the World Wide Web, or distribution of computer disks. One of the most frequently asked questions by users of SAGE is when will SAGE be available in a Windows version? This effort therefore satisfies the request for a more user friendly Windows version of the SAGE system that is called SAGE for Windows (WSAGE) Version 1.0.

What Is SAGE?

SAGE is not a data base; rather, it is a PC based expert system that evaluates the user's present operating scenario, then identifies possible alternative solvent chemistries and processes that best suit the defined operating and material requirements. The system asks for information concerning the user's existing operation,

such as: part size, present processing chemistry, part cost, production rate, and contaminants (or soils). Based on the answers provided, a limited number of recommended options are shown that represent the most probable alternate cleaning chemistries and/or processes. A full report can be generated by SAGE, presenting the recommended options and important technical parameters for implementation of the option. The report provides information on environmental considerations to be taken into account, regulations that must be addressed when using each alternative, safety requirements, economic considerations, equipment requirements, and other information that must be considered before implementing the recommended alternatives. Finally, the report will include examples of case studies with a similar operating scenario and requirements.

This version of SAGE has been enhanced not only with the conversion to a Windows format but also with the introduction of preliminary graphic schematics for some options. Explanations of questions are included to assist the user in understanding the scope of the analysis that SAGE completes when formulating recommended alternatives. The ability to use the system as a process design tool is also improved by allowing changes to answers about the process and process requirements without restarting the analysis. This will permit the user to see how minor changes to the process parameters will change the potential options. These represent only a few of the changes to the system format over previous versions that enhance its usefulness as a process option and design tool.

SAGE is designed for use by both technical and nontechnical individuals ranging from shop foremen to government regulatory agency personnel. The minimum system requirements for SAGE for Windows are a PC, running Windows 3.1 or higher with at least 8 MB of memory. The WSAGE directory takes 6 MB of disk space.

The SAGE development program is a continuing effort with new versions appearing periodically as new technical developments are identified and evaluated. Subsequent versions will incorporate into the system additional types of surface cleaning requirements and additional technical data. Future enhancements will include a process and facility design capability, economic and cost projection capability, and a regulation summation by state will be incorporated and continually improved as data are acquired.

While the final selection of a process alternative must ultimately be made by the user, the SAGE for Windows version will provide the user with the information needed to make that choice. For more information on SAGE for Windows call the EPA Control Technology Center at (919) 541-0800.

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The complete report consists of paper copy and two diskettes and is entitled "SAGE for Windows (WSAGE) Version 1.0 Solvent Alternatives Guide, User's Guide," (Order No. PB97-503130; Cost: $60.00, subject to change). It will be available only from
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