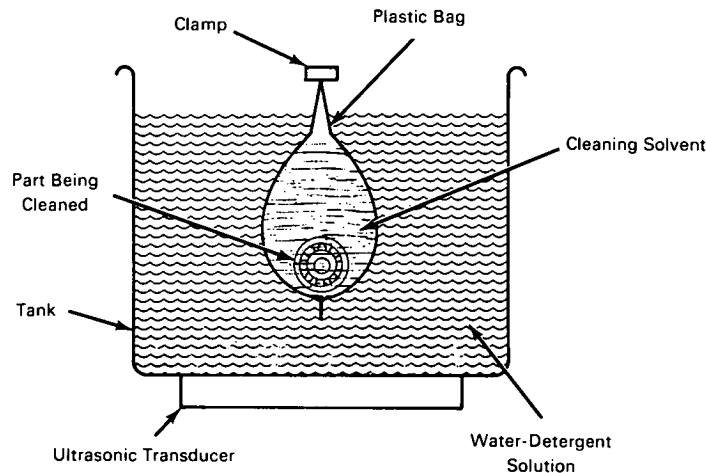


NASA TECH BRIEF



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Technique for Ultrasonic Cleaning with Volatile Solvents Eliminates Need for Hoods or Condensers



When mechanical parts are to be ultrasonically cleaned in organic solvents which evolve toxic or flammable vapors, a ventilation hood or condensing system is normally required to remove the vapors from the work area. A safe technique has been devised for ultrasonically cleaning small quantities of small parts in such solvents without the need for vapor removal equipment. This technique can be used in facilities having standard open ultrasonic cleaning baths containing aqueous detergent solutions, which do not evolve hazardous vapors. The parts to be cleaned are placed in a thin, tough, solvent-resistant plastic bag together with the required solvent (e.g., methyl ethyl ketone, trichloroethylene, naphtha, or toluene). The bag is then clamped shut, after most of the air has been squeezed out, and suspended in the ultrasonic cleaning tank containing the water-detergent solution. When the ultrasonic transducer is operated for the re-

quired time, the vibrations generated are transmitted to the contents of the plastic bag. Vapors and expanded liquid volume due to the heat caused by the ultrasonic agitation or otherwise introduced are trapped in the bag. At the end of the cleaning process, the bag is allowed to cool and the parts are then removed, rinsed, and dried. The bag and solvent may be reused several times.

Other advantages of this technique are: only small quantities of expensive solvents are required; contaminants are readily isolated for analysis; only one tank normally used in the work area for general purpose ultrasonic cleaning with an aqueous detergent solution is required.

Notes:

1. Any required solvent (including acids or alkalis) which is compatible with the bag material can be used for cleaning small quantities of parts.

(continued overleaf)

2. This Tech Brief is complete in itself. No additional information is available.

Patent status:

No patent action is contemplated by NASA.

Source: Emil Pipersky of
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