USERS GUIDE FOR
SP-28
DEWAXER / WAX REMOVER

Manual developed by:

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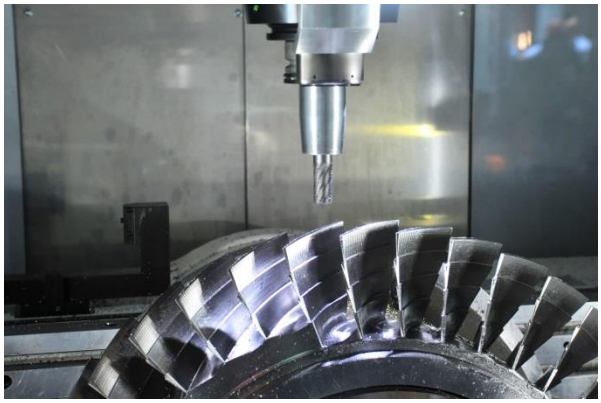
- Note: This manual is written primarily for users of Rigidax tooling wax. Much of the information may also apply to other waxes as well.



Contents

Description of SP-28

SP-28 is a bio-based, semi-aqueous (mixes with water) cleaner designed primarily to remove waxes. It is also effective at removing greases, pitches, lubricating oils and metalworking fluids. It is based on a blend of aliphatic esters, wetting agents and emulsifiers. It is compatible with most polymeric substrates, elastomers, ferrous and non-ferrous alloys. We always suggest that you do your own compatibility testing.

Application

SP-28 is suitable for use in a variety of commercially available cleaning systems including immersion/soak tanks. Agitation by mechanical or liquid means will greatly improve its wax removing performance. It is typically used in a 100% concentration. SP-28 will not work well when cold. It is normally heated to a temperature close to the melting point of the wax that is being removed. The flash point of SP-28 is approximately 285°F (141°C) so its temperature should be kept well below that. Since we are talking mostly about Rigidax tooling wax here, we can assume that the melt point of Rigidax is nearly always less than 181°F (83°C). In a typical Rigidax dewaxing application there is not much reason to heat the SP-28 higher than 220°F (104°C).

Typical Process

1. **Wax Pre-Removal**:

   Remove the bulk of Rigidax by heating the part and melting the wax off. You can usually re-claim most of the wax for future use. Several methods are commonly used. In certain cases, running your part along a conveyor or rack in a heated oven works. Putting the part back into the melt tank can sometimes remove most of the wax. In either case, once the bulk of the Rigidax is removed, you will be left with a part with a thin coat of wax that may sometimes look like a coat of enamel paint that has chipped and flaked off.

2. **Wax Removal With SP-28 Immersion**:

   Dip the parts in a heated bath of SP-28. This is usually done with SP-28 heated to a temperature near the melting point of the wax. For Rigidax a bath temperature of 200°F (93°C) is generally a good starting point. Gentle agitation will help remove the wax much quicker. Using mechanical means is usually the least expensive. Ultrasonic agitation will also work but will probably be more expensive. The amount of time required for adequate removal of the wax will depend on how much wax is on the part and the size of the part. In our tests, a 75mm diameter metal gear that was triple dipped in Rigidax NMF Red took about 2 minutes for complete wax removal.

3. **Rinse**

   The rinse step is done to remove any residual SP-29 cleaning fluid or wax debris from the part. A heated water bath in the range of 150°F (65°C) to 212°F (100°C) range is generally adequate. An alkaline rinse followed by a water rinse is also optional. Alkaline rinses are generally done at a 5% to 10% concentration but this will depend on the product that you are using. If an alkaline rinse is used, a second rinse is usually performed with either clean water, deionized water or demineralized water.

Expected Useful Life

SP-28 is capable of holding up to 40% of its weight in wax before it is considered exhausted. If the bulk amount of Rigidax or wax material is reclaimed prior to the first immersion in SP-28, its life will be greatly extended.

Disposal

SP-28 is not considered hazardous waste by the US Environmental Protection Agency 40CFR261. One novel way to dispose of large quantities of SP-28 is by fuel blending. This is very similar to the methods used to dispose of fats and cooking oils. If you do an Internet search on the term “fuel blending” there are several good explanations of how this is done.

SP 28 Technical Data

Description:

SP 28 is a bio-based semi-aqueous cleaner. SP28 is based on a blend of aliphatic esters and wetting agents and emulsifiers. It is designed to quickly dissolve paraffinic and microcrystalline waxes. SP 28 effectively removes pitches, greases, buffing compounds, metalworking fluids and lubricating oils. SP 28 can be used to replace most traditional solvents used in dewaxing operations. SP 28 is compatible with most polymeric substrates, elastomers, ferrous and non-ferrous alloys. Compatibility testing is recommended.

Application:

SP 28 is suitable for use in a variety of commercially available cleaning equipment including immersion/soak tanks with air, liquid or mechanical agitation.

Typical configuration for process:

Wash Bath Concentration	100% concentration
Wash Bath Temperature	190-205°F (88-96°C)
DI Water Rinse Temperature	190-205°F (88-96°C)

Soils removed

Coolants • Waxes • Pitches• Greases • Hydraulic Fluids • Polishing Compounds• Buffing Compounds

Properties:

Odor	Very Low
Flash Point	>285 °F (141 °C)
Specific Gravity (25°C)	0.86
Vapor Pressure(20°C)	<0.002mmHg
Kauri-Butanol (KB) Value	90

Compatibility Notes:

No adverse effects have been noted on the following materials. We always recommend that you confirm these observations by performing your own compatibility test.

- Compatible with all metals
- PTFE
- Nylon
- Cellulose Acetate (CA)
- Polyethersulfone (PES)
- Regenerated Cellulose (RC)
- No data available for urethanes
- Nitrile
- Santoprene

Note: Viton rubbers are **not** recommended with SP-28