

CoSolv™ 17C/35R Designed Fluids

Cleaner, Degreaser, Defluxer

- Suited for Vapor Degreasers.
- Efficient, Safe and Effective
- For cleaning Flux, Oil, Nonionic and Ionic Contaminants

CoSolv™ Designed Fluid is a double solvent system, non-flammable, environmentally safe and user friendly cleaning solvent formulated for the most delicate and precision cleaning jobs in the electronic world. It is designed to properly work in most existing vapor degreasers. It is compatible with variety of plastics and elastomers which are common in the electronics.

Introduction

Usually a vapor degreasing cleaning system is working with either a single solvent or an azeotropic blends which for all practical purposes are behaving as a single solvent system. In such process most of the solvent properties such as boiling point, condensation point, heat of vaporization and dissolving ability are set by the solvent. We need to rely on the solvent to come with all the needed characteristics for good cleaning job. In contrast, a double solvent system, non-azeotropic, is more flexible and can be manipulated in order to achieve variety of possible processes and outcomes. Cleaning is usually achieved based on two major attributes of solvents, namely: dissolving power (such as KB value) and boiling temperature. The higher the dissolving power the better the cleaning is. The same with temperature, the higher the boiling point the faster the cleaning is. The beauty of the double-solvent system is that we can define and maintain the optimal cleaning temperature in which the soil is removed and yet the components are not adversely effected. Under such conditions, even the most delicate part can be cleaned.

CoSolv™ is a double-solvent system which comprises a cleaning agent CoSolv C (C is for cleaning) and a rinsing agent CoSolv R (R is for rinsing). The cleaning agent (also called solvating agent) has a high boiling point, high flash point. It will clean based on mild dissolving power and high boiling temperature. The rinsing agent which has a low boiling point and is non-flammable, will rinse and remove the cleaning

agent after the basic cleaning of the substrate is done. Simply put, the cleaning agent will remove oil, grease, flux, wax and particulates while the rinsing agent rinsing, cleaning the parts from the cleaning agent and dry it. The operator can control the boiling temperature by deciding the ratio between the cleaning and the rinsing agents in the system.

Since the entire operation is carried in a boiling temperature, it should be done in a vapor degreaser. During operation the cleaning agent will concentrate in the boiling sump and the rinsing agent will concentrate in the clean sump. The boiling temperature depends on the ratio between both agents in the boil sump. We offer 4 basic systems which are built based on the combination of two basic cleaners 17C and 97C and two basic rinsers 47R and 35R Table #1 indicates the various characteristics of each component and the comparison between the two cleaners and the two rinsers. Table 2 indicates the boiling points for any combination of the possible 4 components. The boiling point is a function of the ratio between both the cleaning and rinsing agents.

Table 1: Physical Properties

	CoSolv 17C	CoSolv 97C	CoSolv 47R	CoSolv 35R
Boiling Point, (°C)	197	235	42	36
Density, g/cc (25°C)	0.85	0.81	1.35	1.23
Flash Point °C (°F)	64 (148)	95 (203)	none	none
Viscosity, cSt (40°C)	1.3	2.0	0.34	0.53
V. Pressure, mmHg (20°C)	0.3	0.03	235	560
Surface Tension, mN/m	27	29	18	16
Kauri butanol value	18	14	43	29

Application

CoSolv™ 17C/35R is designed to be used in a controlled vapor degreaser system. Ideally, the vapor degreaser will have two sets of cooling coils, one is for condensing and collecting the vapors of the rinsing agent, the other one is set at the freeboard zone (freeboard chillers), to reduce and prevent excessive losses of the rinsing agent and to prevent moisture of getting in.

Soils removed

Oil and grease, solder fluxes, particulates, ionic (water soluble) and non-ionic contaminants, organic and inorganic soil, buffing compounds, paints, coatings, sealants, adhesives, masks, wax and anti-rust agents.

Substrates compatibility

Metals, alloys, ceramics, plastics, elastomers, acrylics, printed wire assemblies (PWA),

Table 2: Boiling Temperatures of various blends

Blend of various proportions and their corresponding boiling point temperatures

CoSolv™ 17C		CoSolv™ 35R		Boiling Temp.		Vapor Temp.	
Wt.%	Vol%	Wt.%	Vol%	°C	°F	°C	°F
77	84	23	16	174	346	140	254
71	79	29	21	149	300	117	241
67	75	33	25	121	250	88	160
62	72	38	28	103	217	75	137
59	69	41	31	88	190	64	117
56	66	44	34	74	166	53	97
53	63	47	37	60	140	48	88
50	61	50	39	51	124	47	87

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Co-solvent Process, Controllers Setup and Procedure

The vapor degreaser temperature controllers should be set according to the desired boiling temperatures and ratio between the cleaner and rinsers as outlined in table #3.

Table 3: Controllers Setup

HTC - High Temp. Controller	5°C (10°F) above the determined boiling point.
SVC - Safety Vapor Control	5°C (10°F) below the determined boiling point.
Main Refrigeration Coils	2°C to 4°C (36°F to 40°F)
Freeboard Chiller Coils	-10°C to +2°C (-15°F to +36°F)

The Boil Sump is filled with the cleaner-rinsers blend which will result in the determined boiling point. The Rinse Sump is filled with rinsing agent only.

Table 4: Process Sequence

Step 1 After observing the coils condensing the vapors, immerse the parts in the boil sump.
Step 2 Pull up the parts from boil sump and allow the solvent mixture to drain off the parts
Step 3 Lower the parts and immerse parts in the rinse sump
Step 4 Pull up the parts from rinse sump and hold in the vapor zone until dripping has stopped.
Step 5 Remove clean and dry parts from the vapor degreaser

ENVIRONMENTAL AND SAFETY

CoSolv™ components are approved by the EPA under (SNAP).

CoSolv™ components are listed on the TSCA list.

CoSolv™ components are not classified as Hazardous Air Pollutant under NESHAP.

CoSolv™ components are not reportable under SARA Title III Section 313.

CoSolv™ blends are non-flammable and have either no flash point or it is above 60°C.

PACKAGING

CoSolv™ C15 is available in 353 Lb. drums and 32 Lb. pails.

CoSolv™ R65 is available in 551 Lb. drums and 50 Lb. pails.

CoSolv™ C15/R65 is available in 309 Lb. drums and 37 Lb. pails.

The product should be stored in the original containers in a cool, dry and ventilated place. Do not expose to temperatures higher than 120°F.

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