

	Tempera- ture	40° F 4.4° C	50° F 10° C	60° F 15.6° C	68° F 20.0° C	75° F 23.9° C	80° F 26.7° C	86° F 30.0° C
Density	Specific Gravity							
.9990	1.000			0				
.9915	0.9925	5.7%	5.3%	5.0%	4.7%	4.0%	3.5%	3.4%
.9859	.9869	11.0%	10.5%	10.0%	9.3%	8.3%	7.8%	7.3%
.9807	.9817	17.2%	16.0%	15.0%	13.9%	12.7%	12.2%	11.4%
.9768	.9778	22.6%	20.5%	20.0%	18.0%	16.2%	15.4%	14.5%
.9709	.9719	29.7%	27.0%	25.0%	23.8%	21.9%	20.4%	19.1%
.9647	.9657	34.5%	32.1%	30.0%	28.4%	26.8%	25.7%	24.2%

Percent Isopropyl Alcohol in water from density or specific gravity readings.
(Permission for use of chart courtesy of Baldwin-Gegenheimer Corp.)

IV. Solving Problems by Use of Alcohol

I. Snowflaking

Alcohol helps eliminate "snowflaking," a problem in which the printed areas contain white "snowflakes" when viewed under a magnifying glass (Ref. 5). To the naked eye, the print appears pale or washed-out. The problem arises when the ink is unable to emulsify or carry away droplets of water on the image areas. Alcohol helps to solve the problem by reducing the amount of water required for dampening.

"Snowflaking" is particularly troublesome in printing non-porous substrates, such as film and foil, because porous surfaces do absorb some of the water carried on the surface of an ink film without interfering with ink transfer. On non-porous substrates, high concentra-

tions of alcohol (50 to 60%) have been used to overcome this problem.

2. Wet Picking

Water reduces the strength of paper, and wet picking is observed on the second or later units in multicolor presses if the sheet has been weakened excessively. Addition of alcohol to the fountain reduces the amount of water transferred to the sheet and is frequently a satisfactory way to overcome this problem.

3. Blanket Piling

Blanket piling results from solubilization of paper coating adhesives. Piling often occurs as a result of excess dampening, in which case it may be overcome by adding alcohol to the dampener. Reducing the amount of water thus reduces the

solubilization of the coating adhesive and prevents transfer to the blanket. On the other hand, piling can sometimes be reduced by running more water which "lubricates" the blanket.

4. Ink Drying

Excess water-in-ink emulsification and high relative humidity are known to retard the drying of oxidative-drying inks. Reducing the water in the ink by addition of alcohol to the fountain is frequently of help in preventing ink drying problems such as chalking and mottling.

5. Misregister

Many misregister problems are created by the expansion of paper resulting from addition of excessive water to the sheet. Misregister can be corrected, or at least reduced by use of alcohol in the fountain, when the misregister is caused by excess water.

6. Ink Emulsification in the Dampening Solution

If ink becomes emulsified in the dampening solution, a pale ink tint can form on the plate and appear in non-image areas of the print. Alcohol cuts down on the total emulsification of water in ink and probably of ink in water. Where the alcohol is really of help, however, is in improving the ink-water balance, eliminating the trouble at its source, because carrying excess ink, particularly soft ink, is one cause of the emulsification of ink in water.

