SOAP IS NOT AN OPERA:

How to Buy Cleaning Chemicals (Part Two)

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Last issue we discussed a bit of basic chemistry pertaining to cleaning detergents, the mechanics of soap making, the pH scale, how surface tension affects the cleaning process, and what it really means to "go green." We began to dispel the misconceptions surrounding the soap-making industry. Now, let's take a look at how to save megabucks when it comes to purchasing detergents for the cleaning contract.

DETERGENT CONCENTRATES

Since "going green" means more expense for everyone, it is important that cleaning contractors learn how to stretch their detergent dollars. The biggest savings will come from purchasing quality concentrates in bulk. Water, commonly known as "the universal solvent," is a key ingredient – and a cost – in the making of detergents. While some water must be present, more water is an extra cost; purified water is not free.

Production of concentrated detergents costs less than making those with low or nonexistent dilution rates, mainly because of packaging labor and materials. The increased labor of putting detergents in quart bottles versus 55 gallon drums is astronomical. It takes ten times longer to pour a case of a dozen quarts as it does to pour 55 gallons into a drum.

Oh, but what about automation? Sure, expensive filling machines can cut costs over time for packaging zillions of gallons. Not all manufacturers of quality detergents are large enough to support them though. Let's look at some real figures:

EXAMPLE: A gallon of a quality concentrated degreaser currently runs about $13, having a proven dilution ratio that works for the

TIP: AVOID USING HOUSEHOLD BLEACH AND AMMONIA AS CLEANING DETERGENT REPLACEMENTS

Bleach and ammonia have been prime chemicals used by the cleaning industry since the Industrial Revolution. They're cheap, at least in their undiluted form. Cheap does not mean clean however. Sure, both chemicals are stout and will clean stuff, but are they a good way to cut cleaning costs? Let's look at some of the pros and cons:

CONS:

1. Bleach and ammonia are dangerous and hazardous. Thinking of "going green?" Forget it with these chemicals. Both are heavy disinfectants used in water purification and waste treatment facilities. They eliminate creatures from the water supply – including fish.

2. These chemicals contain no detergents, so improving the wettability of the mopping solution is limited. Dirt simply falls back to the surface even as you mop. (See article, "Soap is Not an Opera" for more information.)

3. They both burn skin and damage incompatible surfaces like waxed floors.

4. Neither is very dilutable for cleaning purposes, which means greater chemical costs.

5. There are certainly a few surfaces that respond well to bleach or ammonia, but I can't think of any. Both chemicals put wear and tear on most types of surfaces.

6. The two products accidently mixed together will give off toxic chloramine fumes and kill you.

PROS:

1. Bleach takes out some stains from some surfaces, mainly fabrics.

2. Ammonia makes an okay glass cleaner if you can stand the smell.

By employing Benjamin Franklin's method of decision-making, we see that the cons outweigh the pros. Don't use these chemicals to replace detergent cleaners unless you want to pay more to get less cleaning done, plus add to your liability on the job.

job at the rate of one part degreaser to 64 parts water. A gallon of "use-as-is" degreaser costs around $8 and will do the job too. How much is the real cost per square foot for each product? Given: a gallon of liquid detergent covers about 1200 square feet.

The Concentrate: 1/64 = .016 dilution ratio. Multiplying $13 x .016 = $0.21 per gallon. This makes the real cost of degreasing 1200 square feet a mere 21 cents!

The Use-As-Is: 1/1 = 1 dilution ratio. Multiplying $8 x 1 = $8 per gallon. This makes the real cost of degreasing 1200 square feet a whopping $8!

From the example we can see that the actual cost of degreasing 1200 square feet with the proven concentrated degreaser, even though we pay dramatically more, is by far the most economical product to use! This same method of calculation can be used to determine the real costs involved with every type of detergent. A final tip: avoid buying fancy packages, especially dilution control bottles and premeasured pods. Often the packaging costs more than the actual detergent. Buy in bulk.

DILUTION CONTROL

Once the chemical costs have been calculated and the best product for the job is chosen, it comes down to proper training of the end user to ensure that we eliminate the biggest drain on our investment – waste. This brings us to dilution control. Nearly any container can be filled using exact ratios, thus removing the possibility of human error and waste. As long as the proper ratio for the job is achieved, it doesn't matter how simple or complex the dilution method. Use of a measuring cup is about as easy as it gets (see Dilution Chart, Page 17). Buy one. Make copious notes on the dilution ratios that work best with each detergent in your cleaning arsenal.

Figure 1 – Push Button Blend Centers

If you are a larger contractor and are still allowing your employees to use the glug-glug method of dilution control, it would be extremely prudent to obtain a proportioning system. Also known as chemical proportioners, blend centers, dispensing systems, and dilution control stations, these devices meter specified amounts of detergent into water automatically (see Figure 1). These systems come in many configurations and range from about $80 to $600. Find a proportioning system that handles all of the cleaning detergents you use no matter what the final expense in equipment. Equipment costs are minimal when compared to detergent waste. The investment will be recouped very quickly.

As bulk chemicals have a lower cost per gallon, it behooves us to buy in as large a container as we can afford. For a contract cleaning service, that means a bare minimum size of five gallon pails of the best concentrates we can find. Since the shelf life on detergents is measured in years (if in a properly sealed container), and since contract cleaning services use these products every day, I have always recommended purchasing in 30 or 55 gallon drums. Dispensing into smaller containers, properly diluted, cuts detergent costs as far as they can go.

Just think, if an employee uses three glugs from the jug of disinfectant, that's a bare minimum of ten ounces. If that same employee

only puts two gallons of water in the mop bucket, that's a ratio of five ounces per gallon. If the detergent calls for one ounce per gallon of water, that employee just quintupled the detergent cost for the job!

Consider this: your company currently buys 180 gallons of neutral cleaner each year. The glug-glug method causes a minimum of one-fifth of the 180 gallons to go down the drain. That's 180/5 = 36 gallons wasted. The detergent cost is $6.90 per gallon, so 36 x 6.90 = $248.40. Since dilution control units for drums only run about $100, you tell me, is it worth it to control waste?

DETERGENT QUALITY

Our next consideration is quality of the detergents used. If a detergent does not help get the job done in a timely fashion with a reasonable amount of labor, get another detergent that does.

Once the proper type of detergent is picked for the job, following instructions on the label will establish the quality. For instance, general damp mopping of waxed floors calls for a neutral cleaner; your brand of neutral cleaner states to pour three ounces in a gallon of warm water to damp mop a waxed floor. Further, the detergent label says to apply liberally with a mop and allow five minutes to soak, and then sop up. Does it work? If so, purchase more; otherwise, find another brand.

The worst-case scenario: your cleaning crew of three (hourly wage of $7.25) was slated to spend six hours mopping the gym floor at a church. Your detergent indicated that you would use five gallons (cost of $6.90 per gallon) and be able to mop once. Instead, it took nine gallons, plus fourteen hours of labor. That's 14 – 6 = 8 x 3 = 24 hours extra time, 24 x 7.25 = $174 extra labor, and 9 – 5 = 4 x 6.90 = $27.60 extra detergent for a total extra cost of $201.60. There goes the profit!

The point is you get what you pay for. Buy quality to save money. This does not mean you have to buy name brand detergents either. There are many smaller manufacturers making quality products too. Do the research. Run the tests. Keep the notes. Find the products that work best for your cleaning team!

DETERGENT DILUTION RATIO CHART

RATIO	OUNCES OF DETERGENT	OUNCES OF WATER
1:1	128 ounces	128 ounces
2:1	64	128
3:1	42.7	128
4:1	32	128
5:1	25.6	128
6:1	21.4	128
7:1	18.3	128
8:1	16	128
9:1	14.2	128
10:1	12.8	128
16:1	8	128
20:1	6.4	128
30:1	4.3	128
40:1	3.2	128
50:1	2.6	128
64:1	2	128
100:1	1.3	128
128:1	1	128
175:1	.75	128
256:1	.50	128
512:1	.25	128
600:1	.22	128
800:1	.16	128
1000:1	.13	128

For any ratio calculation, divide 128 ounces by the detergent part, usually the larger number of the ratio (Example: 50:1 means 128/50 = 2.6 ounces).

CONCLUSION

We've covered much territory in the realm of cleaning chemicals, mainly geared toward how to choose efficient, quality detergents to help reduce cleaning costs. Along the way we learned why detergents are used, why cheap is not actually cost conscious, why dilution control is imperative, and why becoming knowledgeable about basic chemistry as it pertains to detergents will help us exorcise the voodoo surrounding soap making.

The "soap opera" of changing rules and regulations perpetuated by the Green Movement, manufacturers, and the feds does not have to break our contract cleaning companies. We may have to take into account all the directives pushing our costs higher, but at least now we can filter out much of the hype so we can get down to the business of making a profit through educated detergent purchasing.