GOLD DOWN THE DRAIN (SINK TRAP)

Kenneth Laughlin

One of the most underrated tools in a jeweler's arsenal is the sink trap. It can be a difficult and unpleasant tool to use, but it's necessary. It makes the metal recovery process more efficient and is essential to the financial bottom line of any jewelry operation. I'll share my 14 years of experience with this essential tool and will review sink trap sizes, considerations for installation, what you can and cannot put down the drain, and how to effectively clean it.

Kenneth Laughlin holds a degree in Political Science with a background in Business and brings 16 years of extensive experience in the jewelry industry. As a sales representative for United Precious Metals Refining, Kenneth offers comprehensive expertise in refining processes, maximizing refining returns, and providing manufacturing consulting. His client-first approach has earned him a reputation as a trusted advisor in the jewelry industry.

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INTRODUCTION

Perhaps the most underrated tool in a jeweler's arsenal is the sink trap. Needless to say, it stinks and it is a pain to install. It can leak and cleaning it is unpleasant to say the least. However, it is a necessary tool that makes the metal recovery process more efficient and is essential to the bottom line of any jewelry operation. My presentation is based on my 14 years of experience in cleaning and maintaining sink traps. It will include information on different sink traps sizes, considerations when installing a sink trap, "do's and don'ts" of what goes down the drain and advice on what not to put down the drain. Finally, I will cover the important steps in cleaning a sink trap

First, I would like to explain what a sink trap is and how it works. A sink trap is a retention system that works by slowing the flow of water. Every time a jeweler washes their hands and every time the steam machine is used, the particles and dust go down the drain. Without a sink trap, this metal flows out into the sewer system and is lost forever. However, when a sink trap is present, the metal drops to the bottom of the trap, where it is captured and retained. After a period of time, the trap is cleaned and the "sludge" is sent to a primary refiner whereby the metal is recovered, refined and assayed.

PROCESS

Figure 1 shows the basic method by which a standard sink trap operates. Referring to the image above, the water flows from left to right and as the water passes over the slots, the heavier metal drops into the first slot. The first slot will contain the largest amount of metal particles, and the second slot will have the second most and so on until the last slot, which will contain the smallest particles and the least amount of metal. Eventually the water will fill the sink trap and will continue its flow to the right and out to the public sewer system, leaving the valuable metal behind.

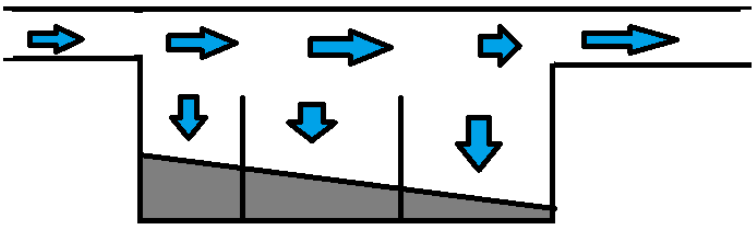

Figure 1: How a sink trap works

TYPES OF SINK TRAPS

Sink traps come in different shapes and sizes, they can be as small as a shampoo bottle or as big as an office. Typically, sink traps are made out of plastic but I have seen sink traps made out of metal. I do not recommend metal and I actually discourage it as these are designed for restaurants to catch grease, not for precious metals. Most sink traps will either have dividers to slow the water flow or will have a drop that is deep enough to collect metal particles.

Figure 2: Metal sink traps corrode easily

Figure 3: An efficient sink trap

EFFICIENCIES AND DEFICIENCIES

My experience has shown that sink traps that slow the water flow the most will retain the most material. This is a basic principle based on the relative weight of precious metals. (Old miner's quote: gold is lazy). Sink traps that don't have a high enough drop from top to bottom, and from water entry to water exit tend to be the least efficient. Another key factor in the efficiency of the trap is the frequency of cleaning. I have seen sink traps that haven't been cleaned regularly. When this happens, they lose their efficiency because there is less room for the material to be collected. Since the trap is full, the valuable drain water continues on down the drain and out of your building.

HOW TO CHOOSE A SINK TRAP

As previously stated, sink traps come in many shapes and sizes, so how do you choose one? It all depends on four factors:

1. The volume of precious metal containing water that is produced.
2. The available space below the sink.
3. The number of jewelers in the shop.
4. Future plans. If your business is growing, you should consider installing a large sink trap if space allows.

As I previously stated, I would not install metal sink traps. They cannot handle the acidic, humid environment which leads to almost immediate corrosion. Figure 4 shows a metal sink trap (this metal sink trap is three years old). I broke the screw the moment I

tried to open it. The other problem with the metal sink trap is that the rust falls to the bottom making it more difficult for the refiner to separate the precious metals from the non-precious metals which will always increase your reclamation charges.

Figure 4: A metal sink trap, rusted out

The best option in choosing a sink trap, are those made of plastic, preferably one with multiple slots. For those on a tight budget, a functioning "do it yourself" sink trap can be made using a simple five-gallon plastic bucket (Figure 5), some piping, and ancillary supplies, all for less than $100.

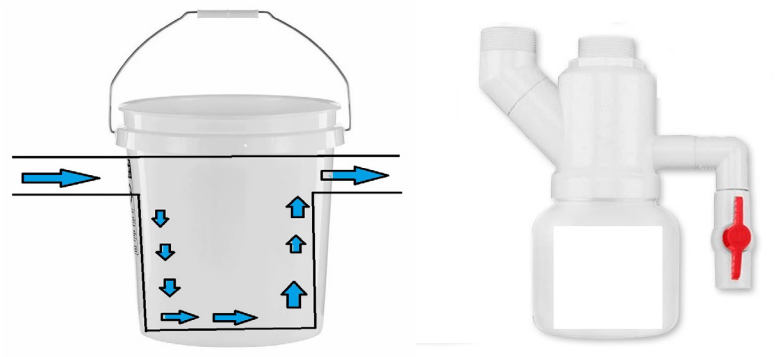

Figure 5: Plastic sink traps are inexpensive and easy to make yourself

CLEANING

One of the most common mistakes that jewelers make when installing a sink trap is that they do not leave enough space to open and clean the sink trap. At the end of the day what good is a sink trap if you can't effectively and efficiently access the trap to clean it and recover the precious metals?

BEST PRACTICES

Keep good records: To make things easier, it is recommended that you keep records and a schedule of trap cleaning activities. For instance, how many gr/dwt of material has your sink trap collected each time it was cleaned? What was the ideal frequency? It is really important to calculate the benefit using grams or dwt's rather than the dollar value as precious metal values change daily. A smaller collection of precious metals could be more valuable than a larger collection, depending on current metal prices. For example, one year you can be dealing with a market of $1800/ozT. but only produce 60 gr and the next year the market could be $1600/ozT. but produce 70 gr.

ORGANICS

Designate sinks where possible: A common practice among jewelers is to clean their food dishes in the same sink as the sink trap. When this occurs, they are feeding organic material to a humid environment. This practice will have two unintended consequences:

1. You will produce a large number of bacteria in your work environment, essentially creating a localized sewer.
2. The day you decide that you are going to clean your sink trap, the horrible smell and gases will be released into your facility. Trying to sell something to a customer when their entire focus is on the smell is borderline impossible.

I have seen shops evacuated because of the foul odors; employees and customers just walking out of the building when I open the sink trap. Ideally, there should be a sink that is dedicated to the precious metals process and a second sink to be used for the disposal of food.

Mitigate the associated odor: One way to help with the smell is to pour bleach or some odor retardant down the drain the day before the trap is scheduled to be cleaned. These are both readily available at your local hardware store.

REQUIRED TOOLS

Cleaning the sink trap will require some planning. It is best if it is done the day, you are closed or after hours if possible. Depending on the size of the sink trap you will need different tools. For example, let's say that you converted a 55-gallon metal drum into a sink trap. You will need something to remove the water from the top, about 20% of that sink trap has metal, all that metal will be sitting in the bottom of the barrel. Ideally a water pump, an empty 55- gallon drum, a wet-vac and a 5-gallon bucket will be all you will need. If you don't have a water pump, the wet-vac will be enough, but it will require some labor. Start by sucking the water with the pump or the wet-vac dump all of the water into the empty 55-gallon drum. Once you reach the sludge/mud, vacuum it and place it in the 5-gallon bucket. The water from the 55-gallon drum should be dumped back into the sink. If there is metal that you accidently vacuumed into the 55- gallon drum it will be trapped back into to the sink trap. If you have a small sink trap, just use a wet-vac vacuum for everything and just dry the remaining sludge.

DRYING

A lot of shipping companies do not like to handle liquids. Therefore, the best solution is to dry the sludge. There are a few ways to that.

1. Use a metal bucket and hot plate.
2. Simply let the water evaporate until you have just dry mud.
3. Leave it in a sunny area and allow the water to evaporate.

After the drying process is completed, it is now ready to be sent to a refiner for precious metal recovery.