

## Vinegar Syndrome - Discussion

This article is a compilation of posts from the FCLS List Server.

From Roger:

Well, it finally happened. I now have a vinegar smelling print. It is reel #3 of The Mechanic. Reels 1 & 2 are still fine. The vinegar reel still looks ok and plays fine as I showed it this weekend. Question: Do I need to do anything with this reel and is the vinegar smell going to be a problem and ruin the print. Also, why would only 1 of the 3 reels get it? I assume they are all the same film?

From Sheldon:

Roger..... if the film stock for all three reels is identical, then the other reels will probably get it too... it's just a question of time. I would immediately segregate the vinegar reel which should be kept well away from your other prints. I would then soak it for a week in Filmrenew.... then run it between rewinds with a clean cloth. Don't put it in can. It must be open to the air... as all your prints should be. Every few months, check on it and if necessary do the soak thing again. I have found that you can slow down the vs, and in some cases totally get the smell out. If you catch it quick enough you can maintain it and project it for many years yet.

From John:

What your going to need to do is to keep that reel AWAY from your other prints. Believe it or not, vinegar syndrome is contagious and it will affect your other films. From what I've read, there is no cure nor any known way to stop it. Some posters mention the use of something called molecular sieves. Place these strips between the film and the reel and then seal it in plastic for a specified time period (6 months).

From Paul:

Vinegar Syndrome is a contagious degeneration of the acetate base of films, so if only one of your reels is smelling bad, SEPARATE IT from the other reels, or else they will all go together. Reels that have been chemically cleaned with solvents, or "rejuvenated," seem to be especially likely to get it. The reason only one reel is showing it may be either they'll all get it, and this is only the first to show the symptoms, or it may be that only the third reel has been cleaned (by the studio? the distributor? the film library?) so the others may not get it at all. There's no way of knowing at this point, but the most important thing is to separate any vinegared reels from the rest of your collection or else they may all catch it. Probably the best thing to do with the reel is to put it in a can with something called a "molecular seive", a packaged product made by Kodak which is said to slow or stop the degeneration process. (I sure hope so, because there seems to be

nothing else that works.) Exposing the reel to the air is useful, as it takes the vinegar off the print and slows down the degeneration, but, at least in 35mm, it doesn't work for long, especially on Disney prints that have been cleaned; nothing seems to help them, probably due to the chemicals used in the cleaning process. The vinegar seems to be generated from inside the film stock, not on the surface. And keep the print in the dark; sunlight speeds up the syndrome. Good luck, Paul

From Frank:

All of the posts that answered already have the right idea (also, read the information on vinegar syndrome on the FABULOUS Film Collector's Reference Center at -> <http://www.film-center.com/vstreat.html> ) To all that has been said, I would just add that you shouldn't think of this acidosis process (VS) as a disease that can be "caught" by other reels. This is a chemical process, not a virus. You just need to keep in mind that the vinegar smell is a gas that is outgassing from the film in which the process has begun. The gas has an acid pH and if good film in which the process hasn't started is put in an atmosphere that has an acid pH, that will trigger the deterioration process in the good film. You should remove the off-gassing reel from close proximity to other reels, but if the gas is dissipated (by a fan) or absorbed (by a discant like a molecular sieve or even by baking soda) the other film will not be harmed. As long as the environment is kept free of the acetic acid gas, your other pints will be OK. If you smell vinegar, that's your highly sophisticated pH tester (your nose) telling you there is acetic acid gas in the vicinity, air out the place and get the offending reels out of there.

One of the things that hasn't been mentioned yet is that there are three catalysts involved with this process: the gas itself, temperature and moisture. Reduce all three will go a long way to keeping even sickly film from becoming unrunable:

- 1) Get rid of the acetic acid gas, 2) get the temperature down as cold as you can get it and 3) get as much of the moisture out of the air as you can

Doing all three will pretty much slam the breaks on this process. Without moisture, the conversion to acetic acid gas cannot take place. And of course, cold temperature will slow down any chemical reaction. Of the three, keeping the pH of the environment free of acidity (in the form of the gas). Keep your storage site well aired. I have a fan blowing through all the time. Next keep as much moisture out of your storage environment as is possible. And this is really fairly easy and very inexpensive compared to air conditioning. Next is keeping the "bad" film as cold as you can. I have actually been looking into the cost of building a walk-in, butcher-type freezer in the basement (my brother's basement that is -- I don't have one -- his wife promptly asked how he would like sleeping in the walk-in freezer and how would I like to be banished from setting foot in her house....but that's another story.) You would be surprised how relatively inexpensive it is; operation costs are not nearly as much as regular house air conditioning because of the very hefty insulation. But, it is probably a given for most of us building that walk-in butcher freezer is not an option, so we do the best we can keeping the prints in as cold a place as possible. But what we shouldn't neglect is the other very significant factor, i.e., the moisture. A very

inexpensive dehumidifier can be of great help here. I keep one running constantly and have run a drain tube into a slop sink. It removes a PAIL of water a day on humid days. I figure that's just so many little H<sub>2</sub>O molecules that the acidosis process doesn't have to latch onto \par the triacetate or however the damnable process works. I am thinking of building a plastic enclosure around my print storage area; keep the moisture out with the dehumidifier, the temp down with an air conditioner and check it all the time for that vinegar smell. Air it all out every week. Yep, its a lot of work, but I have prints that have been around for years (I am talking about 30 year old prints) that have absolutely not a trace of the acidosis syndrome. I am confident that they will last another 30 if precautions are taken.

Oh, yah, there's one other thing I would like to mention. I have heard an kind of assumption that acidosis HAS to eventually happen and that sooner or later ALL film will deteriorate. This is not the case and Eastman does not hold this view either. The current theory is that the process takes place only in film in which the development process was not properly done. The "stop bath" and the "wash bath" were allowed to become saturated or the film was rushed through them too fast so that whatever chemicals they are suppose to counteract and "stop," evidently aren't totally disabled or removed. So SOME prints have chemical properties that shouldn't be there. But not all prints. Correctly processed film should not develop VS. As proof, my dad took home movies when he first got married -- these are over 50 years old. All are Kodachrome triacetate safety film. The same triacetate base, same as all the other film stock Kodak sold for 16mm and 35mm configurations. I have boxes and boxes of these films and not a single roll of it has turned. Not a hint of vinegar smell either. But home movie film is processed differently because it is reversal film. Totally different chemicals I am told. It doesn't take a Sherlock Holmes to deduce that it has to be the processing and how that is done that's the difference. Anyway, I just wanted to give a little relief that you don't have to sit and worry that every single print you every purchased will eventually turn into vinegar twizzlers (red twizzlers at that). I have a room full of 35mm prints and only the freakin DISNEY print of LADY AND THE TRAMP -- IBTec, 4track mag -- is warping and giving out that all too familiar smell. And as has been mentioned, Disney "rejuvenates" the prints so they can be reused. It is not the cleaning that hurts them, it's the application of a chemical sealant that is the culprit. We have been talking about that acetic acid gas escaping from the film and causing a chemical cascade in other film. Well, just imagine trapping that gas inside the film base itself so that it just cascades the chemical process in that very film, snowballing it faster and faster. That's the problem; the gas is trapped inside by the rejuvenation chemical coating (not by the cleaning). And we all know Disney does this on purpose just to punish collectors for winning the court case that says we can own their prints and we are not breaking the law by doing so (just kidding....but I wouldn't put it past them).

And lastly, I am experimenting with putting rags soaked with ammonia in the storage room. Ammonia I am told it is an alkaline and very volatile in the sense that converts easily to a gas. The theory (mine) being that if the environment around the film can be more alkaline that should counteract or neutralize any acidic out-gassing. Now please, don't everyone start doing this -- it's an experiment. I am just testing it based on my

limited (let's rephrase that: my VERY limited) knowledge of chemistry. I am not a chemist, I just play one on TV. I have no idea what this alkaline environment will do to everything else -- the dyes, the emulsion. even the base itself...I could wind up with a pile of goop in the bottom of the plastic bag. Wait till I report back on how this thing works, if it works, OK? I don't want it on my head that a bunch of film collectors start posting questions asking advice on what kind of funnel should be used to spoon their prints into the projectors.