01-28-2007, 06:29 AM #1

instantjim
Senior Member
Perth, Western Australia

Join Date: Dec 2006
Posts: 111

Gum Turpentine

I've just got a copy of Ralph Mayer's Artist handbook, in it (p405) he says that there is little difference between the pure gum spirits of **turpentine** sold at a paint store and the double rectified stuff made for artists. I was under the impression that the gummy residue in the less rectified **turpentine** was a significant problem but Mayer says it is to be disregarded. Does anyone have an opinion on the matter? I have seen adds for double and even triple rectified **turpentine** - is this just a case of art materials manufacturers sellling an unnecessarily pure and expensive product? I just paid $10 for 500mL of artists **turpentine** when the hardware store pure gum turps is around 1/3 of the price. I would be using this for mediums.
jim

01-28-2007, 08:19 AM #2

Tyzack
Member

Join Date: Jan 2007
Posts: 81

Re: Gum Turpentine

Materials sold in art shops are generally priced for people who use small amounts of paint - that is they have a huge mark up!

When I was a student I would order a large amount of paint for myself and my fellow students and would get a 40% discount!

I use a Epson printer with my PC. Epson are adament that I should use only Epson inks with it - I actually use inks bought from Ebay for fraction of the Epson price, and have been doing so for years without any adverse effects.

I'm probably being very cynical but I'm sure that the manufactuers of the turps, just like Epson and their printing ink, would love you to think that your painting will disintergrate if you don't use their products - which it probably won't.

I'll be interested to see what others will say and hope that I'm right...

Andrew

01-28-2007, 09:25 AM #3

nicanfhilidh
Senior Member
Atlanta, GA

Join Date: Aug 2003
Posts: 478

Re: Gum Turpentine

Mayer is **flat-out wrong** on this. There is a huge difference between quality artists' **turpentine** and the gunk you buy in gallons at the hardware store. The process to make them are different (distillation vs. rectification), they come from different trees (the best turps are made from a specific specie of pine, not any old kind), and it smells and handles differently. There is a tangible difference in how it behaves in mediums.

Personally, I think Mayer's exhortations to buy cheap, crappy **turpentine** are a large reason why a big scare has built up around the idea of **turpentine** being the toxic subtance from hell. The stuff stinks to high heaven and gives us headaches. Why use something

that makes you sick? And, while solvents for brush-cleaning are one thing, why use something in your mediums that is obviously of poor quality?

Dorothy Northcutt Gray :: Blog :: Imagekind :: Etsy
There is extremely well-founded proof that liquin is the invention of, that's right, the devil. - Adrian Gottlieb

01-28-2007, 10:07 AM #4

Tyzack
Member

Join Date: Jan 2007
Posts: 81

Re: Gum Turpentine

Hi Dorothy,

Can you point us to some evidence that backs up what you're saying?

I'd be very interested. I personally use good quality stuff myself as it goes quite a long way anyway and there can't be much saving using cheap turps (which I don't know where to buy - maybe its something you buy in the USA?). I use white spirit to clean my brushes though.

I know from personal experiment that turps produces a better finish than white spirit, and white spirit gives a better finish than **turpentine** substitute (student days). But I've always used artist quality turps so wouldn't know about the cheaper turps?

Andrew

01-28-2007, 10:49 AM #5

nicanfhilidh
Senior Member
Atlanta, GA

Join Date: Aug 2003
Posts: 478

Re: Gum Turpentine

From http://www.plasterarc.net/essay/essay/CassarT.html. Bolded parts are the most important info.

Quote:

> **Turpentine** (oil) - A volatile, flammable liquid used for thinning oil paints. **Turpentine** is obtained as the steam distillate from gum **turpentine**. It is a mixture of cyclic monoterpene hydrocarbons, such as pinene. **Turpentine** is primarily used as a solvent for paints and varnishes and as a cleaner for paint brushes. It is also a good solvent for many natural resins, waxes, oils, plastics and rubber. **The best quality turpentine is fresh, clear and thin. Turpentine** thickens and yellows with age; moisture can cause cloudiness in varnishes. Three major grades of **turpentine** are:
> - Pure Gum Spirits of **Turpentine** (**double distilled**, rectified) is pure, and without water. This is the grade of **turpentine** used by artists. - **Wood turpentine is made from ground wood. - Sulphate turpentine is obtained as a by-product of the paper pulping industry.** - The chief varieties of **turpentine** are: - common **turpentine** (Pinus abies, Pinus sylvestis, etc.),
> - Venice **turpentine** (Larix Europea), - Bordeaux **turpentine** (Pinus maritime), - Strasbourg **turpentine** (Abies picea), - China **turpentine** (Pistacia lentiscus), - Canadian **turpentine** (Abies balsamisfera), - Chian **turpentine** (Pistacia terebinthus), and
> - American **turpentine** (Pinus australix, Pinus taeda).
> It is listed among the substances used for coating the surface of stucco marble in the twentieth century.
> Synonyms: spirits of **turpentine**; **turpentine**; oil of **turpentine**; turps; huile de terebenthine (Fr.); Terpentinol (Ger.); gum spirits; wood **turpentine**; gum **turpentine**
> Museum of Fine Arts, Boston (2000); Wittenburg (1999)

Your best quality **turpentine** is double distilled. It is used in fine artists' materials and cosmetics. The cheap crap you can buy in American hardward stores and which Ralph Mayer wants us to use is the stuff that is made as a by-product of the paper industry.

The best **turpentine** will say "distilled" on the bottle. If it does not specify this, then don't assume it is artists' grade.

Dorothy Northcutt Gray :: Blog :: Imagekind :: Etsy
There is extremely well-founded proof that liquin is the invention of, that's right, the devil. - Adrian Gottlieb

01-28-2007, 07:02 PM #6

turlogh
Enthusiast
Auburn, Massachusetts, USA

Join Date: Jul 2003
Posts: 1,508

Re: Gum Turpentine

Dorothy is absolutely correct. Try the smell test. If it smells horrible (as most hardware store turps does), it is not suitable for painting with.

Mayer was wrong about a lot of things. Some parts of his book provide useful resource material, but most of his opinions are no better (or worse) than what you'd get by asking questions on an internet forum and treating the first firmly stated opinion you see as gospel.

David Rourke

Visit my art blog

01-29-2007, 12:10 AM #7

Join Date: Jan 2005

georgeoh
Veteran Member
Northern California
★★★
Posts: 719

Re: Gum Turpentine

I have written a summary of an article that can be found at the Natural Pigments Web site about **turpentine**. Some of it is technical, but you can skip those portions and read under the subheading "What **Turpentine** Should Artists Use?" to get the quick version on what **turpentine** should be used by artists.

Turpentine is a term used to designate a broad range of terpene solvents. The terpene solvents used in the paint and varnish industry are almost entirely obtained from the pine tree. The commercial products vary somewhat in their properties, owing to the method of production and the raw materials employed.

Gum turpentine is produced in larger amounts than the other terpene solvents and is manufactured by steam distilling the exudation of the living tree. The gum is obtained by scraping the face of the pine tree and collecting the viscous solution of gum that exudes through a gutter and into a cup. The gum usually contains 68% rosin, 20% **turpentine** and 12% water (Romaine 1932). The gum is collected and steam-distilled. Distillation of the gum results in "gum turpentine" or "gum spirits of turpentine" as the distillate, leaving a residue of gum rosin.

Wood turpentine, **dipentene** and **pine oil** are obtained by steam distillation or extraction of pine stumps.

Sulfate turpentine is obtained as a by-product in the manufacture of sulfate or kraft paper.

Destructively-distilled turpentine and dipentene are recovered from the distillate obtained in the destructive distillation of pine stumps.

History
The production of terpene solvents has been done for centuries. According to Herodotus, the ancient Egyptians used **turpentine** (Herodotus). It was first known as cedar oil, the name **turpentine** being derived from the Persian name Termentin or Turmentin.

It is not known when **turpentine** was introduced in the West, but it was known by the 13th century. It was first used in medicine and mention is made of it by several writes in the 15th century. (Gildemesiter 1916)

The production of **turpentine** in southwestern France probably began at a very early period, and records show development in the 14th century. **Turpentine** has been distilled in France since 1783.

In the United States, distillation of **turpentine** began in North Carolina and Virginia early in the 18th century. At first, the consumption of **turpentine** was restricted domestically, but after 1830, the export of **turpentine**, particularly to England, increased greatly. (Gildemesiter 1916) For over 150 years, North Carolina was the leading rosin- and turpentine-producing center of the world.

The recovery of **turpentine** from pine wood was first conducted by dry distilling in retorts. In 1908, Homer T. Yaryan began development of a steam-distillation method of removing the oils from stump wood. The methods of extracting **turpentine** have been greatly improved and expanded since that time.

Although **turpentine** is still being produced in the southern United States, the vast majority of **turpentine** produced today comes from Asia, South America and Africa.

Standards
Specifications for "gum spirit of turpentine" have been published by the American Society for Testing and Materials (ASTM D 13-92) and the Bureau of Indian Standards (IS 533:1973). These standards were devised largely for the quality assessment of **turpentine** intended for use as a solvent. The International Organization for Standardization (ISO) has also issued a standard.

Constituents
The constituents found in wood **turpentine** are as follows:

Wood Turpentine Gum Turpentine
a-Pinene 80% 58-65%
b-Pinene - 30%
Dipentene 15% 2%
Alcohols, including phenols 1.5% 2%
Phenol ethers 0.5% 1%
Esters and phenol esters - 2%

There are differences in the amounts of the constituents depending upon the source of the **turpentine** and the species of pine trees.

Turpentine as a Solvent
Turpentine may be classed a better solvent than petroleum solvents but not so good as the hydrogenated petroleum solvents boiling in the range of 150-200° C. Aromatic solvents are also better than **turpentine**. It is considered, however, the best solvent for natural resins and readily dissolves most of the natural varnish resins. It will not dissolve the fossil resins until they have been heat-processed to render them soluble in drying oils. **Turpentine** is a solvent for many of the alkyd resins. Short oil or modified alkyd resins require a more active solvent, and so manufacturers use d-limonene (dipentene) or petroleum solvents.

What Turpentine Should Artists Use?
Gum **turpentine** or gum spirits of **turpentine** is often recommended for artists' painting or varnish applications over other **turpentine** products, but after reviewing the technical literature on the topic of varnish making or paint film forming there is little reason to support this recommendation.

The principal difference between the **turpentine** products available today -- gum **turpentine** and wood **turpentine** -- is the constituent *b-pinene*, which is almost entirely absent from wood **turpentine**. Wood **turpentine** can be used as a solvent for painting applications, but gum **turpentine** is usually more readily available.

The differences usually noted by artists among the different **turpentine** products available (such as that found in hardware stores and artists' supply stores) arise mostly from the unpleasant odor associated with **turpentine** products that are modified, such as with the addition of petroleum solvents. In this case, the petroleum additive may decrease its solvent powers and certainly can give it an unpleasant odor. This fact may not make the **turpentine** the best choice for artists, but without knowing what the additive or modification is, this fact cannot be determined with any certainty. Hence, it may be best to avoid **turpentine** products that do not have the characteristic **turpentine** odor.

All gum **turpentine** sold is steam-distilled and the labels of "double" or "triple distilled" is a point of distinction that has little or no real meaning in commerce, because all gum **turpentine** whether sold in hardware stores or in artists' supply stores are distilled products. Rectified **turpentine** is the same as distilled **turpentine**, the only difference is in the terminology because that is how it is called in the United Kingdom. Since most **turpentine** products offered meet the ASTM standard, these labeling distinctions offer little information to the artist. It is better to check whether or not the **turpentine** meets the ASTM standard.

Due to the standards by which most **turpentine** is produced today, few **turpentine** products will fail the so-called "evaporation test." This is a test where a sheet of white paper saturated with **turpentine** is allowed to dry and later inspected for any visible residue. A visible residue remaining after the volatile component of **turpentine** has evaporated indicates either contamination or poorly stored **turpentine**.

Some believe that **turpentine** aged "several months" is a superior thinner and increases its durability (Dupont 1933). In this connection, Burnett reports that **turpentine** stored 15 to 18 months, still passes the ASTM tests so that the degree of oxidation developed under normal storage conditions during this period is not great (Burnett 1929). This was a recommendation often encountered in 19th century artists' manual, but its efficacy is unknown.

References

Burnett, W. B. and Salzberg, H. K. 1929. *Proc. Am. Soc. Testing Materials*, 84.

Dupont, G. 1933. *Bull. inst. pin.*, 176 (October, 1926).

Gildemesiter, E. and Hoffmann, F. 1916. *The volatile oils*. Vol. I. Edward Kremers, trans. New York, John Wiley & Sons.

Herodoti, *Historiae*, II, 85.

Romaine, E. V. 1939. *Chemical Industries*, 45, 402.

George O'Hanlon

01-29-2007, 02:16 AM #8

georgeoh
Veteran Member
Northern California

Join Date: Jan 2005
Posts: 719

Astm

There are many opinions about artists' materials, but few artists are able to research the materials thoroughly. To make matters worse, the artists' manuals cited as authorities by artists are woefully out of date. (There are a few exceptions, such as *The Painter's Handbook* by Mark Gottsegen (New York: Watson-Guptill Publications). In addition, much confusion is caused by artists' materials product labeling. This problem is old and will not go away, because artists' materials manufacturers must differentiate their products from others and they must make a profit. Nothing wrong with that, right?

There is a group of artists' materials manufacturers and artist-consumers working together to eliminate the confusion in the labeling and provide standards that help artists to make informed choices. This is the Artists' Paint and Related Materials subcommittee (D01.57) of ASTM International. As the technical director of Natural Pigments, I am a member of the Artists' Paint and Related Materials subcommittee.

If the manufacturer of your favorite artists' materials is not already a member of the ASTM, ask them to join and help support this effort. Artists can also join the ASTM and contribute to this process.

George O'Hanlon

Last edited by georgeoh : 01-29-2007 at 02:24 AM.

01-29-2007, 07:00 AM #9

instantjim
Senior Member
Perth, Western Australia

Join Date: Dec 2006
Posts: 111

Re: Gum Turpentine

So much excellent information! I will test the hardware store **turpentine** by using the evaporation test - thanks Georgeoh. I had thought perhaps that venice **turpentine** from a tack shop being similar, or just as good as art store venice **turpentine** (thanks for the great advice on that one Turlogh!), might be analogous to the comparison between paint store and art store rectified turps. I'm not sure that Australian suppliers label their product so carefully as American suppliers so I'll buy some and try some. As for the smell - I *like* the smell of petroleum, I don't have a great sense of smell! So I don't think that is a way for me to discern the quality of the gum turps, however I will compare it with the artist's stuff (Art Spectrum brand) I already have. Dorothy- thanks for the advice :"The best **turpentine** will say "distilled" on the bottle. If it does not specify this, then don't assume it is artists' grade." I will arm myself with all this advice and if the hardware stuff is no good use it for cleaning brushes.
Thanks again everyone!

01-29-2007, 01:18 PM #10

georgeoh
Veteran Member
Northern California

Join Date: Jan 2005
Posts: 719

Re: Gum Turpentine

Quote:

> Originally Posted by **instantjim**
> *I will test the hardware store **turpentine** by using the evaporation test...*

Please re-read my posting carefully, because, if I am not mistaken, I wrote that hardware store-bought **turpentine** would pass the evaporation test, unless it has been contaminated or stored improperly. I have tested several brands of hardware store-bought **turpentine** (United States only) and they passed, so that test is not a good indication of the solvency power of **turpentine**, it only tells you what remains once the volatile ingredients have evaporated.

Quote:

> Originally Posted by **instantjim**
> *I had thought perhaps that Venice **turpentine** from a tack shop being similar, or just as good as art store Venice **turpentine**... might be analogous to the comparison between paint store and art store rectified turps.*

This is an entirely different subject, but a quick answer is that most (but not all) Venice **turpentine** available from tack shops is not Venice **turpentine**, but rosin and **turpentine**. Horses cannot tell the difference. There is a way to test whether it is genuine Venice **turpentine** (larch tree gum) or rosin, but it requires a laboratory (although simple) procedure.

Quote:

> Originally Posted by **instantjim**
> *I don't have a great sense of smell! So I don't think that is a way for me to discern the quality of the gum turps...*

You cannot necessarily discern the quality of **turpentine** by smell, but you can differentiate whether the **turpentine** has been modified with petroleum solvents.

Quote:

> Originally Posted by **instantjim**
> *Dorothy thanks for the advice: "The best **turpentine** will say "distilled" on the bottle. If it does not specify this, then don't assume it is artists' grade."*

You did not read my posting, Jim. All **turpentine** is distilled. Period. Having the word "distilled" on the label is not an indication of quality. It is like labeling wine with the word "fermented." All wine is a fermented product!

George O'Hanlon

Last edited by georgeoh : 01-29-2007 at 01:48 PM.

01-29-2007, 02:22 PM #11

gunzorro
A WetCanvas! Patron Saint
Simi Valley, California

Join Date: Mar 2004
Posts: 3,303

Re: Gum Turpentine

George -- I bought a quart of Farnham's Venice Turps in a Tack Shop and run comparsions against European art supply Venice Turp. To all extents, they proved identical in consistency, mixing, and overall drying (time and composition). There was no standard **turpentine** smell -- they smelled the same. I am familiar with the rosen smell, and none of these samples had it.

Jim -- Venice Turps and standard Turps are completely different animals! Standard turps is a sovent and evaporates. Venice turps is a resin, and hardens (eventually -- it is a very slow drier). The two have nothing common, other than they are extracted from the pitch of various trees. That is considered a "turpentine" as George refers to in the wine analogy.

01-29-2007, 02:33 PM #12

georgeoh
Veteran Member
Northern California

Join Date: Jan 2005
Posts: 719

Re: Gum Turpentine

Quote:

> Originally Posted by **gunzorro**
> *I bought a quart of Farnham's Venice Turps in a Tack Shop and run comparsions against European art supply Venice Turp. To all extents, they proved identical in consistency, mixing, and overall drying (time and composition). There was no standard **turpentine** smell -- they smelled the same. I am familiar with the rosen smell, and none of these samples had it.*

That is why I wrote "most (but not all) Venice **turpentine** available from tack shops is not Venice **turpentine**." Of course, smell is not the test I had in mind to distinguish pine tree rosin and **turpentine** from larch tree balsam and **turpentine** (Vernice **turpentine**). Keep in mind that some Venice **turpentine** sold in art supply stores may also be simple rosin and **turpentine**, too. It depends on whether or not the merchant is knowledgeable enough to distinquish the source of the **turpentine**.

George O'Hanlon

Last edited by georgeoh : 01-29-2007 at 02:55 PM.

01-29-2007, 02:50 PM #13

georgeoh
Veteran Member
Northern California

Join Date: Jan 2005
Posts: 719

Re: Gum Turpentine

Quote:

> Originally Posted by **turlogh**
> *Dorothy is absolutely correct. Try the smell test. If it smells horrible (as most hardware store turps does), it is not suitable for painting with.*

This is not necessarily correct. The "smell test" only indicates whether the **turpentine** has been modified with other types of solvents or process modified. It in itself does not determine whether or not the **turpentine** is suitable for artistic applications.

The reason for modifying **turpentine** is to make it more economical for the consumer. The addition of petroleum solvent or process modification of the **turpentine** does not necessarily make it unsuitable for artists' use. For example, petroleum solvents are used for paint and varnish, however, some are better solvents than others. Stoddard type solvents, high aromatic solvents and hydrogenated petroleum solvents are good solvents for natural and synthetic resins, and are actually better than **turpentine** for this purpose. The reason artists may want to avoid them is that they have higher volatility, which makes them more hazardous to use in pure form. (This has changed with newer solvents introduced during the last two decades.) The problem with grades of **turpentine** that have been modified is simply that unless you know what type of solvent or modification has been made to the **turpentine**, you cannot know for certain its solubility with natural resins and drying oil, which is the reason why artists use **turpentine**.

A simple test with damar resin may indicate its suitability for your purpose. Dissolve the resin in samples of **turpentine** under similar conditions (temperature, humidity, light, agitation, quantity, etc.) and observe the results.

George O'Hanlon

Last edited by georgeoh : 01-29-2007 at 03:24 PM.

01-29-2007, 03:13 PM #14

georgeoh
Veteran Member
Northern California

Join Date: Jan 2005
Posts: 719

Re: Gum Turpentine

Quote:

> Originally Posted by **nicanfhilidh**
> *The process to make them are different (distillation vs. rectification), they come from different trees (the best turps are made from a specific specie of pine, not any old kind), and it smells and handles differently.*

Distillation and rectification is the same process. In the United States, it is called "distilled," but in the United Kingdom, it is called "rectified." If you look at the *Merriam Webster* dictionary rectify is defined as "to purify (as alcohol) especially by repeated or fractional distillation." All **turpentine** sold on the market today is distilled. It is true that different grades of **turpentine** come from different species of pine trees, but the constituents of the resulting products are practically the same varying only in proportion. The differences in the constituents of pine tree species do not appear to make any difference in the suitability of the resulting product.

The species of pine trees used today to make **turpentine** are as follows (*Pinus x.*): *P. elliottii, P. pinaster, P. massoniana, P. merkusii, P. caribaea, P. radiate, P. roxburghii, P. kesiya, P. oocarpa, P. sylvestris, P. patula*. This is of interest only to the processors in the quantity and quality of the exudation from the tree, which determines the process they must use and the yield they can expect in order to meet standardized products for the marketplace.

George O'Hanlon

Last edited by georgeoh : 01-29-2007 at 03:18 PM.

01-29-2007, 03:49 PM #15

nicanfhilidh
Senior Member
Atlanta, GA

Join Date: Aug 2003
Posts: 478

Re: Gum Turpentine

George, I appreciate the corrections on technical points, although my information is that the finest grades of **turpentine** come from two particular species of pine trees that are native to the southeastern US. If you say this is untrue, I defer to you. I do stand by my assertion that the **turpentine** sold in hardware stores is greatly inferior to the **turpentine** sold expressedly for artists. My eyes, nose, and head will not be convinced otherwise.

Dorothy Northcutt Gray :: Blog :: Imagekind :: Etsy
There is extremely well-founded proof that liquin is the invention of, that's right, the devil. - Adrian Gottlieb

Closed

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