

# Best Practices for Safe Painting

For Oil and Acrylic Painting in the studio



# Alchemy:

Al·che·my

*/ˈalkəmē/*

*Noun*

Noun: alchemy

the medieval forerunner of chemistry, based on the supposed transformation of matter. It was concerned particularly with attempts to convert base metals into gold or to find a universal elixir.

*Synonyms:* chemistry, magic, sorcery, witchcraft  
"immortality through alchemy"

A seemingly magical process of transformation, creation, or combination.

# Spirits:

- ❑ the nonphysical part of a person that is the seat of emotions and character; the soul.
- ❑ the nonphysical part of a person manifested as an apparition after their death; a ghost.
- ❑ those qualities regarded as forming the definitive or typical elements in the character of a person, nation, or group or in the thought and attitudes of a particular period.
- ❑ strong distilled liquor such as brandy, whiskey, gin, or rum.
  - ❑ a volatile liquid, especially a fuel, prepared by distillation.
  - ❑ a solution of volatile components extracted from something, typically by distillation or by solution in alcohol.

Liquor, Mineral Spirits, and Turpentine

# The Parts that Make up Artist's Painting Materials

## ☐ Paint

### ☐ Binders (What holds the paint together)

- ☐ Oil
- ☐ Acrylic Medium

### ☐ Pigments

- ☐ Some Toxic pigments (largely heavy metals)
  - ☐ Cadmium
  - ☐ Lead
  - ☐ Manganese
  - ☐ Cobalt
  - ☐ Phthalocyanine





☐ **Solvents** (For thinning and cleaning of oil paints)

- ☐ Turpentine
- ☐ Mineral Spirits
- ☐ Odorless Varietals

☐ **Varnish** (For protecting and giving a shine to painted surfaces)

- ☐ Dammar Gum Varnish
- ☐ Alkyd Varnish
- ☐ Acrylic Varnish





## Painting Mediums



### Oil Painting Mediums

- ❑ Traditional Mediums (Oil/Solvent/Varnish)
- ❑ Alkyd Resin
  - ❑ Ex: Liquin
- ❑ Dryers
  - ❑ Japan Drier/Cobalt Dryer



### Acrylic Painting Mediums

- ❑ Gel Medium (Acrylic Paint w/o Pigment)
- ❑ Slow Drying Medium (ie: Retarder)
- ❑ Texture Mediums
- ❑ Flow increase mediums





# Dangers!

DO NOT FREAK OUT.

Painting and other Fine Art practices are largely safe and time tested. Artists live long and healthy lives

Most of the dangers are from not art related activities

Just remember:

**Don't Eat or Smoke Your Paint**

# Pigment Dangers

## Heavy Metals

- ❑ Lead - It causes almost 10% of **intellectual disability** of otherwise unknown cause and can result in behavioral problems. Some of the effects are permanent. Particularly dangerous in children. In severe cases **anemia**, **seizures**, **coma**, or **death** may occur.
- ❑ Cadmium - Inhaling cadmium-laden dust quickly leads to **respiratory tract** and **kidney** problems which can be fatal (often from **renal failure**). Ingestion of any significant amount of cadmium causes immediate poisoning and damage to the **liver** and the kidneys. Compounds containing cadmium are also **carcinogenic**. The bones become soft (**osteomalacia**), lose bone mineral density (**osteoporosis**) and become weaker.
- ❑ Cobalt - **intoxication** caused by excessive levels of **cobalt** in the body. Cobalt is an **essential element** for health in animals in minute amounts as a component of **Vitamin B<sub>12</sub>**. Mildly radioactive and carcinogenic.
- ❑ Chromium - The acute toxicity of chromium(VI) is due to its strong **oxidative** properties. After it reaches the bloodstream, it damages blood cells by oxidation reactions. **Hemolysis**, and subsequently **kidney** and liver failure, are the results of this damage. Aggressive **dialysis** can improve the situation. Not Particularly toxic in most cases.
- ❑ Manganese - Manganese toxicity may result in multiple neurologic problems. People who inhale manganese dust, such as welders. Unlike ingested manganese, inhaled manganese is transported directly to the brain before it can be metabolized in the liver. The symptoms of manganese toxicity generally appear slowly over a period of months to years. In its worst form, manganese toxicity can result in a permanent neurological disorder with symptoms similar to those of **Parkinson's disease**, including **tremors**, difficulty walking, and facial muscle spasms.

# Methods of Exposure



## Inhalation



Smoking



Dusts and Powders



Secondary exposure from  
dust on clothes



Sanding



Dry Powder Pigment





## Ingestion

- ❑ Eating while painting
- ❑ Biting your fingernails
- ❑ Secondary exposure from sanded or powder pigments



# Absorption/Skin Contact

- ❑ Paint takes time to absorb through the skin.
- ❑ Latex or Nitrile gloves will prevent most skin absorption of pigments.
- ❑ Washing hands and other exposed areas minimizes exposure.
- ❑ Abrasively scrubbing skin can cause a greater exposure.
- ❑ Soap and water and time is the best approach.

# Solvents



## ☐ Inhalation

### ☐ Most common type of exposure

- ☐ **Toluene** is a colorless, water-insoluble liquid with the smell associated with paint thinners. low to moderate levels can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, hearing loss, and color vision loss. Inhaling high levels of toluene in a short time may cause lightheadedness, nausea, or sleepiness, unconsciousness, and even death.

# Ways to minimize exposure:

- ❑ Use odorless mineral spirits or odorless turpentine.
  - ❑ -Turpenoid
  - ❑ -Gamsol
- ❑ Ventilate
  - ❑ Especially when using Distilled Turpentine or traditional Mineral Spirits.



## Skin Contact



The most direct type of exposure



Solvents pass directly through the skin and into the bloodstream.



Cleaning paints from hands or other skin



Washing brushes



## ☐ Ingestion

☐ Usually inadvertent

**Don't put solvents in drinking cups!**

- Coffee cups
- Plastic drinking cups
- Soda cans
- Anything that you might normally drink from

# Varnishes



Varnishes them self are not particularly toxic, but must be mixed with distilled turpentine to dissolve

## ❑ Absorption/Skin Contact

(It's the turpentine)

- ❑ From applying and washing brushes

## ❑ Inhalation

- ❑ Particularly strong potential from Distilled Turpentine

# Mediums

## Oil Painting Mediums

- ❑ **Traditional Oil Painting Mediums** (Oil, Solvent and Varnish)
  - ❑ Hazard is primarily from solvents
  - ❑ Watch for ingestion (from drinking) as well as inhalation.
- ❑ **Oils** (Linseed, Walnut or Safflower)
  - ❑ **Spontaneous Combustion!**
  - ❑ Use fire safe trash can for any oil soaked rags or paper towels.
- ❑ **Dryers**
  - ❑ Alkyds (Liquin)
    - ❑ Synthetic resins from petroleum products
  - ❑ Cobalt/Japan dryer





## Acrylic Painting Mediums

- Gel Medium (Matte/Semi Gloss/ Gloss)
- Texture Medium
- Flow Increase Medium
- Slow Drying Medium (Retarder)

All acrylics are Petroleum Products and have had very little research on their health effects. The perception that acrylic paints are safer than oils is probably not true.

**-Use ventilation and minimize skin contact**

# Surface Preparation



- ❑ Solvent exposure
  - ❑ Ventilate
- ❑ Sanding - Dust exposure
  - ❑ Wear a mask
  - ❑ Change and then Wash your clothes after

## How to choose a mask

- **N:** Not oil proof (Acrylic Paint and Gesso)
- **R:** Oil resistant up to 8 hours (Oil Paints and Grounds)
- **P:** Oil proof beyond 8 hours (Oil Paints and Grounds and maybe a little paranoid)
- **Number:** Particulate filters are rated 95, 97, or 100; which corresponds to the percentage of one-micrometer particles removed during clinical trials. A 95 rating means that the filter removes 95% of particles from the air. Filters rated 100 are considered High-Efficiency (HE or HEPA) filters.

# Sanding Types of Grounds



## Gesso

- Wear a mask



## Lead Oil Primer

- Use extreme care
- Only sand surfaces outdoors
- Wear a mask (R97+ or P97+)
- Wash your clothes when you are finished



## Titanium Oil Primer

- Titanium is very inert
- Wear a mask (R95 or P95)

# Allergies and Sensitivities



## Linseed Oil

- ❑ One of the more common allergies.
- ❑ One solution is paints made with walnut oil



## Solvents

- ❑ Very common to develop a sensitivity
- ❑ Can cause Asthma attacks



## Acrylics

- ❑ It's rare to develop allergies to acrylic paints
- ❑ Ammonia
- ❑ Old acrylic paints can get moldy.

# Cleaning Up



## Disposal

- ❑ Paints
  - ❑ Consider hazardous disposal site
- ❑ Unused solvent
  - ❑ Settle and evaporate



## Cleaning brushes (To Turp or not to Turp)

- ❑ Painting without solvents is safer and more archival
- ❑ At the sink



## Disposing of rags or paper towels

- ❑ Fire safe trash can



# Don't Despair

Just remember:

**-Don't eat your paint and  
don't smoke your paint!**