

ITMD 125

Interior Textiles

Burn Lab

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- 3/25/23





Sample#: #3 Hopsacking

Before:



Fiber Class: 100% Hemp
Spun

During:



Reaction(to flame): Does not fuse or shrink away

Reaction(in flame): Some melting, sparks, burns rapidly

After:



Flame Removal: Burns rapidly, some melting, sparks

Odor: burned paper or wood

Residue: Fluffy gray ash and soft but the fabric was still intact



Sample#: #7 Moire Faille

Before:



Fiber Class: 51% Acetate/49% Rayon
Filament/Spun

Reaction(to flame): Fuses and curls away

Reaction(in flame): melts rapidly, carries flame as it melts,
sparks

After:



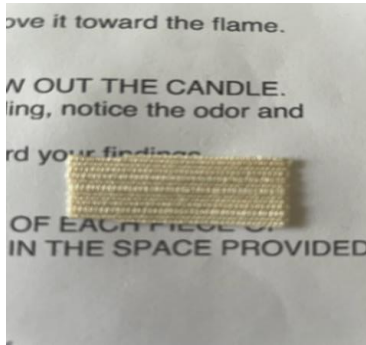
Flame Removal: burns rapidly, sparks, melts rapidly, carries
flame as it melts

Odor: Burned hair

Residue: No ash and hard and dark just around the edges of
the fabric



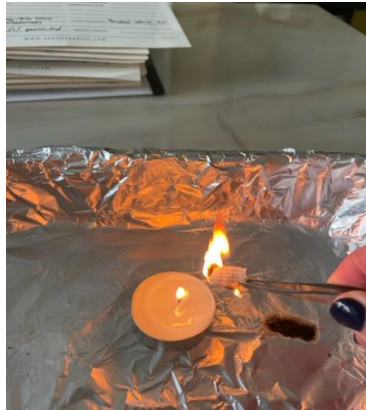
Before:



Sample#: #9 Sunbrella @R Ottoman

Fiber Class: 100% Acrylic
Filament

During:



Reaction(to flame): fuses and curls

Reaction(in flame): Burns rapidly, carries flame as it melts,
long dark smoke, melts rapidly

Flame Removal: Burns rapidly, sparks, carries flame as it
melts, melts rapidly

After:

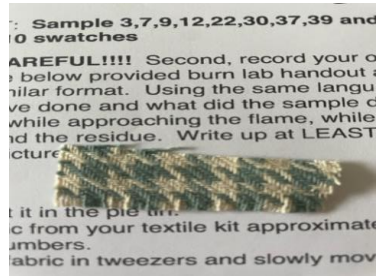


Odor: Non-specific chemical smell

Residue: hard and dark but breakable, carbon residue



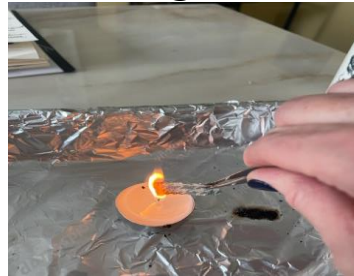
Before:



Sample#: #12 Houndstooth

Fiber Class: 40% Silk/35% Cotton/25% Flax
Spun/Filament

During:



Reaction(to flame): fuses but does not shrink away

Reaction(in flame): burns rapidly, burns bright yellow, sparks, some melting



Flame Removal: burns slowly, some melting, sparks

Odor: burned paper or wood or burned hair

After:



Residue: brittle lumpy bead



Sample#: #22 Tapestry

During:



Fiber Class: 50% Cotton/50% Polyester
Spun/Filament

Reaction(to flame): fuses but does not shrink away



Reaction(in flame): burns rapidly, burns bright yellow, sparks, some melting, carries flame as it melts, long dark smoke

Flame Removal: some melting, sparks, long dark smoke, carries flame as it melts

After:

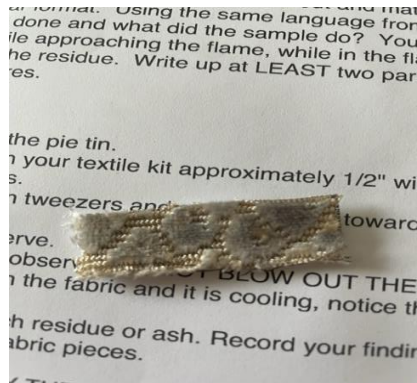


Odor: burned hair

Residue: carbon residue, hard dark unbreakable bead



Before:



Sample#: #30 Voided Velvet

Fiber Class: 100% Silk
Filament

Reaction(to flame): Does not fuse or shrink away

During:



Reaction(in flame): Burns slowly, will not burn, No melting

Flame Removal: Will not burn, no melting

After:



Odor: like rotten eggs and burned hair

Residue: some carbon residue, brittle lumpy bead



Before:



Sample#: #37 Tufted Pile

Fiber Class: 50% Nylon/50% Polyester
Filament

During:



Reaction(to flame): Fuses but does not curl away

Reaction(in flame): Burns rapidly, long dark smoke, melts rapidly, some melting



Flame Removal: some melting, carries flame as it melts, long dark smoke

After:



Odor: vinegar smell and a non-specific chemical smell

Residue: hard dark unbreakable bead, no ash



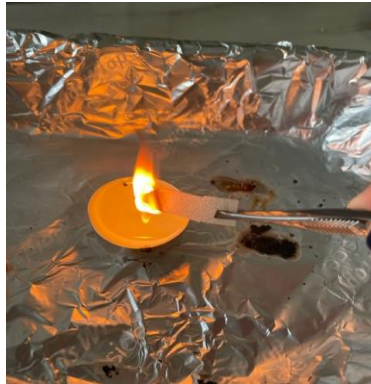
Before:



Sample#: #39 Ultrasuede Simulated Suede

Fiber Class: 88% Recycled Microfiber Polyester/12% Polyurethane
Filament

During:



Reaction(to flame): Does not fuse or shrink away

Reaction(in flame): a little bit of melting, carries flame as it melts, will not burn, burns slowly

After:



Flame Removal: carries flame as it melts a little bit, will not hardly burn

Odor: burned paper or wood

Residue: feels sticky, no ash



Before:



Sample#: #27 Corduroy

Fiber Class: 100% Cotton
Staple

During:



Reaction(to flame): Fuses and curls away

Reaction(in flame): carries flame as it melts, burns rapidly,
some melting



Flame Removal: Some melting, burns slowly, sparks

After:



Odor: burned paper or wood

Residue: soft and fluffy gray ash, carbon residue



Before:



During:



After:



Sample#: # 24 Pocket Cloth

Fiber Class: 58% Rayon/23% Cotton/19% Polyester
Filament/Staple

Reaction(to flame): Fuses but does not shrink away

Reaction(in flame): Burns slowly, sparks, some melting, carries
flame as it melts

Flame Removal: burns slowly, some melting, sparks, carries
flame as it melts

Odor: burned hair or feathers

Residue: brittle lumpy bead, carbon residue

- This experiment is proof of why certain fabric types burn faster or slower. I ended up with three different categories: most durable in a fire, average durability in fire, and least durable in a fire. In my findings, the samples that withheld the best form and did not burn easily were: #3 100% hemp, #30 voided velvet 100% silk, and #39 Ultrasuede simulated suede 88% Recycled Microfiber Polyester/12% Polyurethane. In the average durability group was: #12 Houndstooth 40% Silk/35% Cotton/25% Flax, #22 Tapestry 50%Cotton/50% Polyester, #24 Pocket Cloth 58% Rayon/23% Cotton/19% Polyester. In the poorest group were: #37 Tufted Pile 50% Nylon/50% Polyester, #27 Corduroy 100% Cotton, #9 Sunbrella 100% Acrylic, #7 Moire Faille 51% Acetate/49% Rayon.
- In conclusion, hemp, silk, and simulated suede would be the best used to protect from fire and they were all three very heavy fabrics.

SAMPLE	FIBER CLASS	REACTION (to flame; in flame)	FLAME REMOVAL	ODOR	RESIDUE
#2					
#7					
#9					
#12					
#18					
#34					

#24