

## Flash Times, Temperatures and Relative Humidity #104

**Tip 1: Be sure that when using primers, clearcoats and reducers you not only refer to the TDS for proper flash times but also be aware of ambient and shop temperatures.**

**See below for Transtar temperature ranges:**

Fast reducers, hardeners and activators range	60-70°F (16-21°C)
Medium reducers, hardeners and activators range	65-80°F (18-26°C)
Slow reducers, hardeners and activators range	75-90°F (24-32°C)
Extra Slow reducers, hardeners and activators range	+90°F (+35°C)

**Tip 2: It is very important to be aware of relative humidity and its impact it can have on temperature, dry times and overall product performance and appearance.**

Note: If the water vapor content stays the same and the temperature drops, the relative humidity increases. If the water vapor content stays the same and the temperature rises, the relative humidity decreases. This is because colder air doesn't require as much moisture to become saturated as warmer air.

The hotter the air is, the more water it can contain.

Air that is saturated with water is at a relative humidity of 100%

Air that contains only 50% of the water required to be fully saturated is at a relative humidity of 50%.

Relative Humidity	Air Temperature (Degrees F)										
	70	75	80	85	90	95	100	105	110	115	120
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	130
30%	67	73	78	84	90	96	104	113	123	135	148
40%	68	74	79	86	93	101	110	123	137	151	
50%	69	75	81	88	96	107	120	135	150		
60%	70	76	82	90	100	114	132	149			
70%	70	77	85	93	106	124	144				
80%	71	78	86	97	113	136	157				
90%	71	79	88	102	122	150	170				
100%	72	80	91	108	133	166					

Example: If its 75°F with 20% RH the temperature feels like 72°F. Spraying conditions are optimal, and you should be using Medium reducer/activator/hardener.

If its 80°F with 100% RH the temperature feels like 91°F. In this case you would see the temp as 80°F and would use Medium reducer/activator/hardener, but instead with the RH so High you should be using the Slow reducer/activator/hardener.

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# Flash Times, Temperatures and Relative Humidity #104 *cont.*

## What to look for:

**BLUSHING or MILKY APPEARANCE** - A milky gray or white cloud appears on the surface of the paint film immediately or shortly after application depending in the case when there is a High RH%

## CAUSE(S):

- During application in humid conditions air from the spray gun along with solvent evaporation can lower the substrate temperature below the dew point, causing moisture in the air to condense within the paint film. The condition is accelerated when the top coat is drying too fast which occurs when a fast reducer/activator/hardener is used.
- When opening an activator or hardener, air with high RH can create a reaction with the activator or hardener. When this occurs, it can cause an immediate reaction in the can and cause the clearcoat to be under catalyzed during the application process.
- Spraying in an open environment that has high exposure to elements with high RH.

## COMMON FIX:

- Should blushing occur during application: (a) apply heat to the affected area, or (b) add retarder and apply additional coats.
- If the finish has dried, minor blushing may be corrected by compounding or polishing, let sit while the clear is open to allow moisture to dry, however, severe blushing will require sanding and refinishing.
- When mixing clear and hardener, look for “chunks” in the clear when filtering the paint. If you see chunks in the filter, it means that there has been a reaction with the activator/hardener. The recommendation is to not use it and get a new hardener that has not been compromised. If used when this reaction has occurred the long-term results can be delamination or peeling.
- Spray in a paint booth that is temperature controlled

## PREVENTION:

- Always use good quality solvents/reducers material according to label directions.
- Select proper reducers/activators/hardeners for actual spraying condition.
- Add the recommended amount of retarder when spraying in humid conditions.
- Apply heat after application to evaporate moisture.
- Keep all paint products, specifically hardeners and activators, in a controlled environment of 75°F (24°C) at all times.
- Spray in a controlled environment of about 75°F (24°C) with plenty of air flow.

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