DEW POINT TEMPERATURE & RACETRACK PREP.

by Robert Szabo

Dew point is the temperature at which dew (water) will form from the humidity in the air. This is an important value since much of the tire traction from a racing slick is essentially lost if this temperature is reached. The dew point temperature is provided by many local weather reporting agencies as well as Internet weather services.

EXAMPLE: Today, the local weather station showed a temperature of 63 deg. F at 10 AM.

The dew point was 52 deg. F. There was no dew on the ground and traction was good. If a cold front is moving in, the temperature should be watched carefully when it is approaching the dew point temperature. The temperature can drop to the dew point and racing may be impacted.

EXAMPLE: Last year at one of my races, the regional temperature dropped to 65 deg. F in the evening. The dew point was 65 deg. F. Dew was everywhere and tire traction was a struggle.

RELATIVE HUMIDITY AND DEW POINT: The relative humidity of a region can be an indicator of how close the temperature is to the dew point. As the temperature changes throughout the day, the relative humidity varies. That can be seen in hourly forecasts from Internet sources. For example, in Epping, N.H. for Tuesday, May 22, at 5 pm, 60 deg. F and 41% humidity are forecasted. At 8 PM, a cooler 53 deg. F and a higher 53% humidity are forecasted. Relative humidity is lower in the morning and grows up with cooler temperature. That change in relative humidity is not entirely indicative of the change in mass of humidity in the air. While there is a humidity change with temperature, the greater change in the amount of water saturation is the air. The air becomes more humid, adding a certain amount of humidity. The actual mass of humidity in the air may not vary throughout the day. However, the percentage of saturation does vary. The mass of humidity in Epping may be close to the same amount at 5 PM and 8 PM (or a small increase). However, the percentage of saturation does show a greater change with temperature. In coastal regions, I have seen 90 deg. F days at 40% humidity followed by 60 deg. nights at 80% humidity. The air is more saturated in the cooler evening.

In addition, the dew point may change with the regional temperature. In Charleston, S.C., a temperature of 92 deg. F and a dew point of 62 deg. F are forecasted for Tuesday afternoon. A temperature dropping to 67 deg. F and a dew point rising to 65 deg. F are forecasted for early Wednesday morning. If the regional temperature reaches the dew point temperature, the air is saturated with humidity. In Charleston, S.C. early Wednesday morning, it is close. If the temperature drops further, the humidity condenses out and forms droplets. These droplets will coat a racetrack surface. If this condition were to occur during racing hours at Lowcountry Dragway in Charleston, traction would be reduced or lost.

TREAD OR NOT: Highway vehicles can drive in these moist conditions because street legal tires have a tread pattern that cuts through the dew and grips the surface. Racing slicks do not have a tread pattern with ditches and grooves for the dew to be squeezed in as the tire goes over the surface. As a result, a racing slick will hydroplane on even a small amount of water. I know of two vehicles with bad experiences with racing slicks on the street. One case was a six month old modified 300 HP '63 Impala that was driven very carefully with racing slicks. Unfortunately one day the owner's parent jumped in to borrow the car for a jaunt to the store. The parent drove over some wet pavement and spun into a ditch destroying the Classic. In another case, a relative just finished dropping a Big Block into a brand new Corvette Stingray. During the maiden voyage on the street with racing slicks, a small patch of wet pavement sent that car barrel rolling down an embankment.

RACETRACK SURFACE TREATMENT: Almost all of the IHRA events use a race surface prepared with a spray-on treatment. As the sport of drag racing has evolved through the years, the higher power racecars seemed to evolve with an increasing need for more of a sticky track surface. While a liberal spray of surface treatment on the track do provide a sticky surface, there is a significantly greater benefit from this.

UNIFORMITY: A big advantage to a spray-on surface treatment is uniformity. While it may not be truly uniform from a hot afternoon to a cooler evening, it is much more uniform than having the track surfaces without this treatment. From time to time, we have taken our modified 300 HP '63 Impala that was driven very carefully with racing slicks. Unfortunately one day the owner's parent jumped in to borrow the car for a jaunt to the store. The parent drove over some wet pavement and spun into a ditch destroying the Classic. In another case, a relative just finished dropping a Big Block into a brand new Corvette Stingray. During the maiden voyage on the street with racing slicks, a small patch of wet pavement sent that car barrel rolling down an embankment.

RACETRACK MATERIAL: Royce Miller, Maryland International Raceway, reports that race traffic on the track also helps. The air washing from each race vehicle helps to blow away the humidity to keep it from forming.

INSPECTION: If the outside temperature approaches the dew point temperature, the racing surface must be checked. Miller says that feeling the pavement with your hand will reveal humidity on the surface. Twisting your foot on the starting line pavement to see if it is sticky may not reveal the moisture.

BACK TO THE STAGING LANES: It is fast approaching that point of no return. Weinert is watching his Altronics Portable Weather Station at the track. Several of the racers who are equipped with weather stations are watching as well. If the dew point is reached in the evening, it will most likely remain until sunrise the next day.

ROYCE MILLER: Weinert reports there can also be a difference in temperature between concrete and pavement. He is watching both. Jason Peterson, US 131 Motorsports Park, Mich., as well as Miller both report that often the racing groove narrows under these conditions. Tractortracks do get a little dicey on the edge of the track. If a car gets out of the groove during the day, it may be recovered OK. Good traction is across the track. However, with dew on the track on a cool evening, the groove may be as little as 10 feet wide, according to Peterson. Get out of that groove in a humid evening and the race is probably over for you. Weinert said weather patterns are one of the careful considerations for the National Event schedules and locations. They are chosen from a lot of analysis to best minimize dew point and other weather interruptions.

SPECIAL THANKS to the following contributors for information for this article:

P. J. Harvey, PJH Brands (Supplier of VHT)

Jim Weinert, IHRA Director of Field Operations and PJH Representative

Royce Miller, Maryland International Raceway

Jason Peterson, US 131 Motorsports Park.

About the Author

Bob Szabo is an owner / driver of a blown alcohol drag racecar and author of the technical book: "Fuel Injection Racing Secrets." The author's next book is on methanol racing fuel that will be out shortly.

Check the DRM Yellow Pages for Szabo Publishing or look on the Internet at http://www.racecarbook.com or call (707) 446-2917. If you have any comments about this article or any previous articles by the author, feel free to e-mail directly to the author at bob@racecarbook.com or to the DRM staff: panelamarchysthpv@livenation.com or michaelperry@livenation.com

NOTE: If you have spam controls and you Email any of us & want a response, please enter our Email address to clear your spam blocker.

Time may not permit us to register to your spam blocker.