Rauner, Allan (A.H.)

From: Jerry Metters [jmetters@gw.ford.com]
Sent: Friday, June 25, 1999 3:09 PM
To: arauner@mail.ford.com
Cc: Bob Veres; jmetters@gw.ford.com; jjuronoc@gw.ford.com
Subject: RE: Tires for Export to GCC

Heat does affect tires, but not in the ways you are alluding to in your note. Heat has the following impact:

1. Higher temperatures tend to cause tires to continue to cure faster than milder temperatures. As tires continue to cure the modulus of the rubber will change and properties that are controlled by the modulus will change somewhat. This is a slow process. In the U.S. it may take 5 or 6 years for the tire to change where it may be unacceptable.

2. If tires are loaded and stationary (like on a vehicle parked) at high temperatures (>140 deg. F) heat set flatspotting may result. This is where the polyester body cord can take a permanent set and the compound can take a set and any nylon overlay (H rated or above) can take a set and cause a permanent flat spot. If these flat spots are occuring each time the vehicle is parked, the effect of force variation may be diminished over time.

These are the generally known effects of heat on tires.

Sincerely,
Jerry Metters
Ford Motor Company, Suspension Systems
Building #5, Room 3233, Ph. 313 845-8160
*** Forwarding note from ARAUNER --FORDNA1 06/14/99 15:21 ***
To: JMETTERS--FORDMAIL Metters, Jerry (J.
cc: ARAUNER --FORDNA1 Rauner, Allan (A.H ESTEHOUW--FORDNA1 Stehouwer, Elizabe

From: Rauner, Allan (A.H.)
Subject: RE: Tires for Export to GCC

You mention "A" temperature rating for tires going to GCC.

You also mention that you are not aware of heat aging of tires.

Then please explain to me why there are 3 requirements in the SDS that speak to elevated temperatures; tire flat spotting, paint repair oven and spare tire max temperature.

I understand the tire flat spotting and paint repair oven requirement pertains to vehicle vibration and thumping caused by flat spotted tires, but NOT the spare tire maximum temperature.

Does something happen to tires that see high temperatures for extended periods of time. Why the spare tire temperature requirement?

These vehicles in Saudi Arabia see ambient temperatures in excess of 110-120F for months at a time, with asphalt temperatures in excess of 150F (we are getting the actual asphalt temps in Saudi in June at 2-4pm in the afternoon - as we speak). We will share these temperatures with you when Firestone returns.

Could these tires be reverting back to a "green state" or "uncured state" after being exposed to these type temperatures for 2 to 3 years, thus causing tire tread separation?

Thanks for any insite you can offer.

Allan Rauner
Explorer OPD Chassis

BAAE 1974

Tire and Wheel Engineer
313-59-42821
313-390-6744 (fax)
ARAUNER@FORD.COM
35 months and counting

——Orginal Message——
From: Jerry Metters [mailto:jmetters@gw.ford.com]
Sent: Friday, May 14, 1999 3:57 PM
To: arauner@mail.ford.com
Cc: jmetters@gw.ford.com; Bob Veres
Subject: Tires for Export Countries

The only thing special that we have done in the past is to insure that only "A" temperature rated tires are sent to the Gulf Coast countries. We have also sent speed rated tires because of the high speeds they drive in those countries. I am aware that Michelin developed a special line of tires to be used in the Middle East a couple of years ago. They claimed that normal tire constructions designed for North America would wear for so long in the Middle East climate that carcass failures would occur before the tread would wear out. I am not aware that heat aging plays a part in this. From Michelins
description I thought the carcass failures are normal high mileage fatigue failures.

We have not initiated any DVP&R actions to address this at this time for tires
going to the Gulf Coast countries. Certainly if tires are run underinflated for long periods of time the risk of failure is high. In addition, the Rubber
Manufacturers Association (RMA) in the U.S. will only approve inside patches for repairing punctures. Do you know how they repair tires?

If it is determined that additional requirements are needed in GCCs we will take action to include them in the Tire ES and SDS. If you want to talk more
about it give me a call early next week.

Sincerely,
Jerry Metters
Ford Motor Company, Suspension Systems
Building #5, Room 3233, Ph. 313 845-8160
*** Forwarding note from ARAUNER –FORDNA1 05/13/99 10:58 ***
To: RVERES –FORDMAIL Veres, Robert (R.E JMETTERS–FORDMAIL Metters, Jerry (J.
cc: ARAUNER –FORDNA1 Rauner, Allan (A.H

From: Rauner, Allan (A.H.)
Subject: Tires for Export Countries

Jerry/Bob:

Does AVT (RVT) has any advice or direction or an SDS on what a tire construction should look like for Export to countries other than Europe.

We are having numerous tread separations in extremely hot climates like GCC, Venezuela, and Malaysia. All these countries except Malaysia have unlimited speed limits. We are getting these failures on vehicles between 10,000 and 35,000 miles, and all 1996 and 1997 models that have 2 to 3 years on the road. There seems like some sort of heat aging is going on.

We know we are getting some of these failures from underinflated conditions and poor patching or repairs (fibre plugs, no patches).

I cannot contribute all the tire failures to underinflation at this time. This condition might be the root cause but I can't rule out some sort of heat aging.

Michelin told Elizabeth Stehouwer that they would NOT allow Ford to send one of their NAAO constructed tires for U152 to GCC. They said they would want a complete ground up tire construction for GCC type countries. They said they would want to build a tire with rayon cord instead of nylon or polyester?

What does Michelin and maybe AVT know about what a tire design should look like for these hot, high speed, conditions that we in the VC's and the tire suppliers should know before we export a tire to these countries.

I need your help. The CCRG wants to know what we need to do (as a company) to protect for these failures in these export countries in the future.

Thanks.

Allan Rauner
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Tire and Wheel Engineer
313-59-42821
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36 months and counting