

# Tire 'Care and Feeding'



Porsche National Tech Tactics West 2018 – Tire Technology



# Tire Pressure – Road Use

- Use the car manufacturer’s recommended pressures – ie placard pressure – NOT WHAT IS MARKED ON THE TIRE.
- Can be found on the door jamb, or inside the fuel filler door, or in the owner’s manual

	bar	kPa	psi		bar	kPa	psi	
235/40 ZR 18 (91Y)	2.0	200	30	Stick figure with arrow	2.5	250	37	265/40 ZR 18 (101Y)XL
235/35 ZR 19 (87Y)	2.2	220	32	Stick figure with arrow	2.5	250	37	265/35 ZR 19 (94Y)
235/40 R18 M+S 91V	2.0	200	30	Stick figure with arrow	2.5	250	37	255/40 R18 M+S 95V

Reifenfülldruck kalte Reifen (20°C). Nur von Porsche freigegebene Reifen verwenden. Handhabung Reifendichtmittel gemäß Fahrzeug-Bedienungsanleitung / max. 80 km/h

Cold tyre inflation pressure (20°C). Use only tyres released by Porsche. Use puncture sealing kit as indicated in vehicle Operating Instructions / max. speed: 80 km/h

Pression des pneus froids (20°C). N'utilisez que des pneus autorisés par Porsche. Utiliser le jeu d'étanchéification de pneus selon mode d'emploi du véhicule / vitesse maxi: 80 km/h

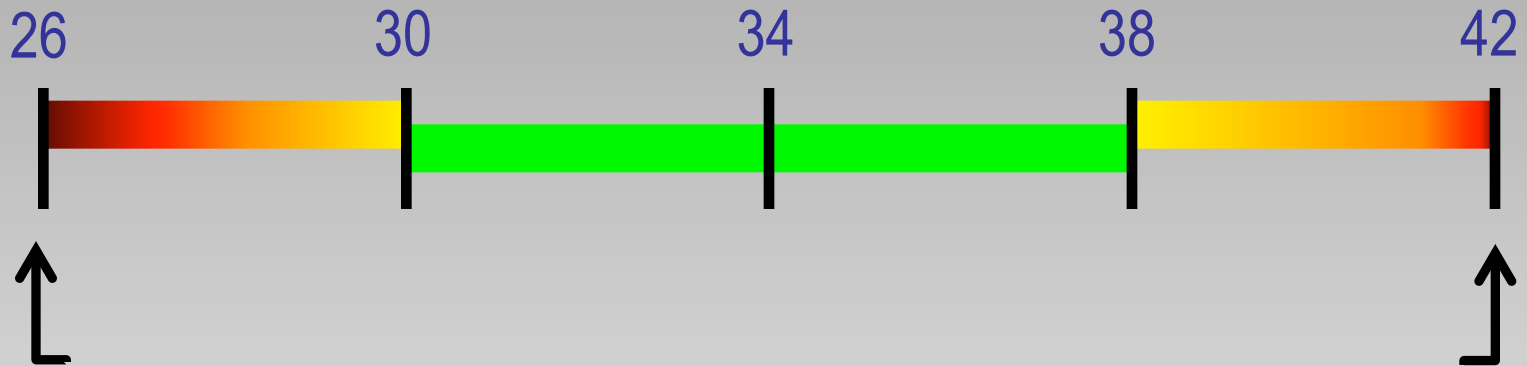
Presión de neumáticos fríos (20°C). Utilice únicamente neumáticos homologados por Porsche. Utilización del kit para parchar neumáticos de acuerdo a las instrucciones para el uso del vehículo / máx. 80 km/h

Pressione pneumatici freddi (20°C). Usare soltanto pneumatici omologati dalla Porsche. Uso del kit di ermetizzazione pneumatici in ottemperanza alle istruzioni d'uso del veicolo / velocità massima: 80 km/h



# Tire Pressure - Track Use - Hot Pressure Targets

– Start at your vehicle’s placard pressure and adjust up or down in front or rear to tune balance.



- Casing Endurance Concerns
- Contact Patch Instability/Badly Shaped
- Unequal Loading
- Difficulty to Maintain Tread Temperature
- Wear appearing on upper sidewall
- Contact Patch Too Small
- Overheating of Rubber on Tread
- Reduced Grip Longevity



# RECOMMENDED PRESSURE – SPORT CUP 2

- ROAD USE
  - Adhere to the inflation pressures recommended by the car manufacturer
- TRACK USE
  - CAUTION
    - For a track day, always begin with inflation pressures recommended for ROAD USE, gradually bring the MICHELIN PILOT SPORT CUP 2 tires up to temperature with steady moderate laps.
    - After a run of some steady laps, then only slightly adjust the inflation pressure to reach the best operating inflating pressure
  - HOT TIRES
    - The best operating pressure of MICHELIN PILOT SPORT CUP 2 is between 2.3 bar (33 psi) and 2.7 bar (39 psi) hot, according vehicle model and track where used
    - However, some vehicle models will need a higher inflating pressure than 2.7 bar (39 psi Hot)
  - COLD TIRES
    - Don't ever use inflation pressure below 1.9 bar (28 psi) cold
    - To optimize the track longevity of MICHELIN PILOT SPORT CUP 2, MICHELIN strongly recommends to use a minimum inflation pressure between 2.0 (29 psi) and 2.4 bar (35 psi)



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# RECOMMENDED ALIGNMENT – SPORT CUP 2

- Geometrical settings e.g. Camber/Toe
  - On the track, geometry settings (camber primarily) can be modified to improve cornering speeds and grip through maximizing the tires footprint and also to prevent excessive wear/fatigue to the outer shoulder.
  - Camber : for optimal results on a circuit , the negative camber settings should be between  $-1.5^{\circ}$  &  $-3^{\circ}$  dependent upon the circuit layout and the type of vehicle. NEVER exceed  $-4^{\circ}$  of negative camber
  - Camber values for road use must be based upon the recommended « road » settings to ensure the correct handling and vehicle behavior for the vehicle and tire



# Temperature Targets for Track Use

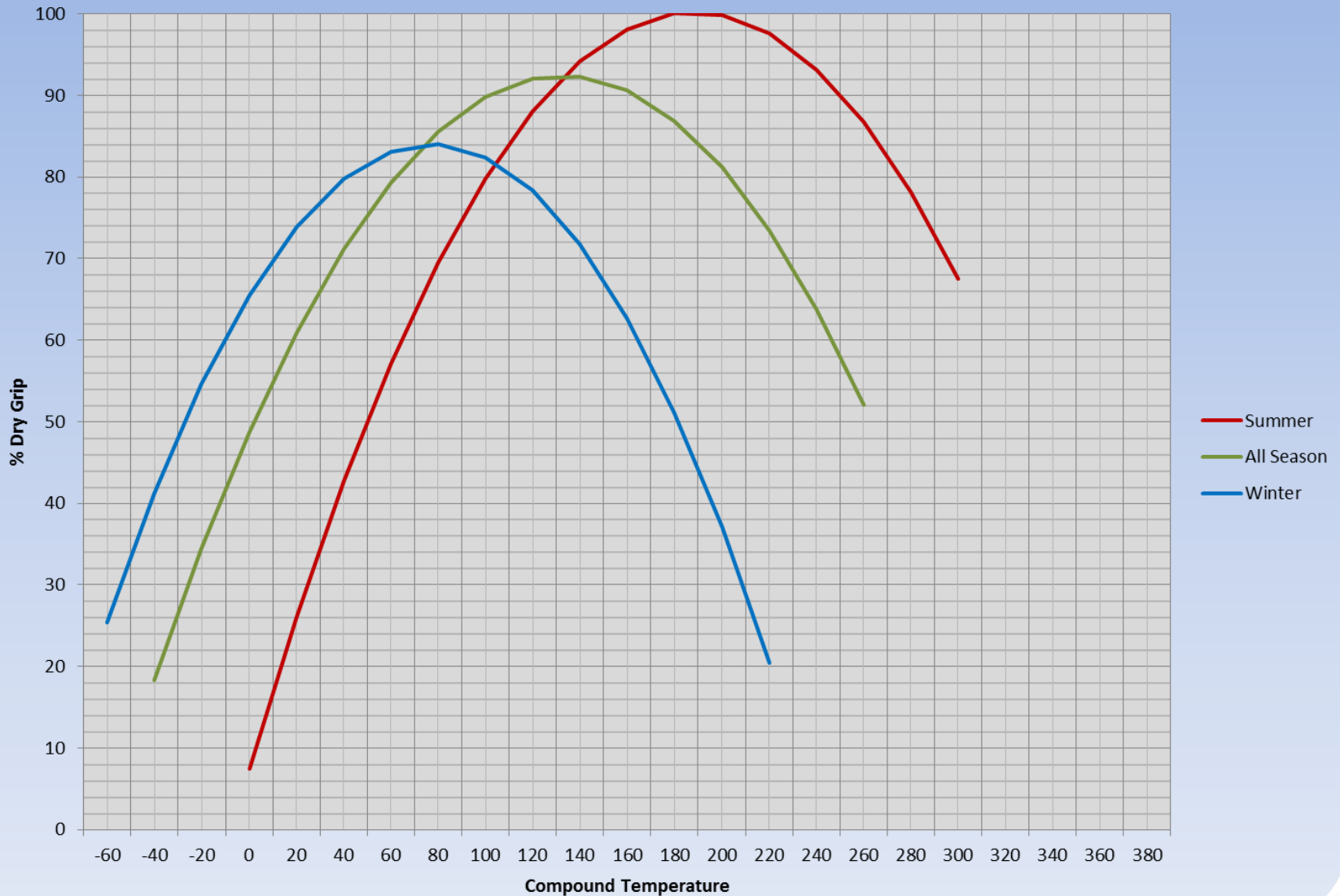
160 - grip starts to come in	<b>~70 deg C</b>
180 - optimal temp for max grip	<b>~80 deg C</b>
200 - grip begins to fall off	<b>~95 deg C</b>

use a probe thermocouple – non-contact will read inaccurately



# Temperature Targets for Track Use

## Dry Grip vs Temperature





## MICHELIN® Ultra-High Performance Sport Summer Tire Cold Weather Precautions

Michelin Ultra-High Performance (UHP) Sport Summer tires use tread compounds that are optimized for maximum dry and damp grip in temperate conditions. As the temperature of the compound nears freezing, the grip level of the tire begins to degrade. Michelin does not recommend using UHP Sport Summer tires when tire temperatures drop below 40°F (5°C) or on snow and ice.

At tire temperatures below 20°F (-7°C) Michelin UHP Sport Summer tires may develop surface cracks in the upper sidewall and tread area if flexed. **Do not use, roll, or drop MICHELIN UHP Sport Summer tires with temperatures below 20°F (-7°C).** If the tires have been cooled to 20°F (-7°C) or less, let them warm up in a heated space to at least 40°F (5°C) before being installed or moving a vehicle on which they are installed. Do not apply heat or blow heated air directly on the tires. Always inspect tires before use.

Never use a tire with freeze cracks, breaks, or damage to the sidewall or tread. If in any doubt please consult your local Michelin contact or call Michelin Consumer Care at 1-866-866-6605.





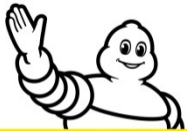
## Tire Storage

If you have multiple sets of tires, proper tire storage is a must. (Just setting them off in the corner of your garage isn't enough.) Proper storage ensures that your tires' appearance and performance are maintained. Before you store your tires, be sure to inspect each one for damage or uneven wear.



### How to Store Your Tires

- Store your tires indoors in a clean, cool and dark location away from direct sunlight, sources of heat and ozone such as hot pipes or electric generators.
- Be sure the surfaces on which tires are stored are clean and free from grease, gasoline or other substances that could deteriorate the rubber.
- If storing outdoors raise tires off the ground and use water proof covering with holes to prevent moisture build-up.
- If tires are on vehicle, store on blocks to remove load from the tires. Maintain placard inflation pressure.
- If your tires have whitewall or raised white lettering, store them with the whitewall or raised white lettering facing each other. Otherwise, black rubber could stain them. (The results are not pretty.)



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# Tire Storage

## TIRES WITH RIMS



Do not store upright



Hang



Stack

(Rotate the stack order regularly and do not place under heavy objects)

## TIRES WITHOUT RIMS



Do not stack



Do not hang



Store upright

(rotate slightly once a month)

