

SCIENCE BEHIND SPORT GETTING TO THE STADIUM

BEHIND SPORTING EVENTS AND HARD-WON CHAMPIONSHIPS, SCIENCE PLAYS A KEY ROLE IN MAKING INFRASTRUCTURE STRONG AND MORE SUSTAINABLE—CREATING INFRASTRUCTURE THAT HELPS SPECTATORS, THE MEDIA AND ATHLETES TO TRAVEL TO AND FROM SPORTING VENUES.



AIRPORTS

Dow elastomer flooring solutions and polyurethane insulation help enhance the comfort, durability and energy efficiency of facilities like airports and public transportation stations.

In 2014 Sochi International Airport handled 3.1 million passengers, a 28% increase over 2013.¹

New roads, rail links and airports built for the Olympic Winter Games Sochi 2014 transformed Sochi into a year-round destination for sport devotees.¹

ROADWAYS

FASTRACK™ Resins help create environmentally friendly waterborne road marking paint that dries quickly creating minimal traffic disruption.

*In preparation for increased travel from Seoul to the Olympic Winter Games PyeongChang 2018, major sections of South Korea's Yeongdong Expressway have been marked with traffic paint powered by FASTRACK™ Resins.**

Dow polyurethane binder systems help polymer concrete resist chipping and cracking caused by impacts and temperature expansion/contraction.



RAILWAYS

MAINCOTE™ Resins help offer chemical resistance, corrosion and weather resistance for metal components in railway systems.

For the Olympic and Paralympic Games Rio 2016, Rio developed three modes of public transportation—the Bus Rapid Transit (BRT), the Metro and the Light Vehicle Rail system.

The Rio transportation network moved about 2.2 million passengers during the Games.²



CAR PARTS

ENGAGE™ Polyolefin Elastomers used in thermoplastic polyolefins help reduce weight, while maintaining impact performance and enhanced aesthetics.

A 10% reduction in vehicle weight can lead to a 6-8% improvement in fuel economy.³

NORDEL™ EPDM facilitates weatherstripping and under-the-hood belts and hoses that are reliable and facilitate lighter weight part design.

SOUND

ACOUSTICRYL™ Technology for Liquid-Applied Sound Damping (LASD) coatings helps create a quiet, peaceful drive while offering lightweighting for improved gas mileage.

LASD coatings in a vehicle can improve sound damping by 50-60% compared to traditional sound damping materials.⁴

ENGINES

UCON™ Performance Lubricant Solutions improve fuel efficiency and engine protection while reducing CO₂ emissions.

Global vehicles in operation will exceed nearly 1.4 billion by 2021, with 2 billion in operation by 2040.⁵

SEATS

VORALUX™ and SPECFLEX™ polyurethane integral skin foam solutions offer enhanced cushion comfort and improved look and feel with lower Global Warming Potential.

Top 3 Traffic Cities

Average amount of hours spent in traffic per year⁶

| City | Average amount of hours spent in traffic per year |
|-------------|---|
| Moscow | 91.4 |
| Los Angeles | 104.1 |
| New York | 89.4 |

Other infographics in the science behind sport series:
THE FAN EXPERIENCE AND INSIDE AND OUTSIDE THE STADIUM

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 1 https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/Games/Winter-Games/Games-Sochi-2014-Winter-Olympic-Games/Facts-and-Figures/Factsheet-Facts-and-Figures-Sochi-2014.pdf#_ga=2.139009723.969634145.1501694342-249971003.1501694342
 2 <https://www.olympic.org/news/olympic-games-transport-rio-to-a-new-level>
 3 <https://energy.gov/eere/articles/timeline-path-lightweight-materials-cars-and-trucks>
 4 http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_0975/0901b80380975565.pdf?filepath=coatings/pdfs/noreg/884-01050.pdf&fromPage=GetDoc
 5 <http://news.ihsmarket.com/press-release/aapex/global-automotive-aftermarket-opportunities-continue-grow-ihs-market-says>
 6 <http://inrix.com/scorecard/>
 *Dow is a Worldwide Partner of the Olympic Games

