



**Our vision:**

**Save Lives**

**on Indian Roads**

**by reducing accidents**

 **ITS Coatings PVT. LTD.**  
introduces **High Friction  
Surface Treatment (HFST)**

**iTrac™**  
**HIF/SIT**

HFST is a unique and specialized surface treatment used to increase friction at critical locations on roadways such as high risk horizontal curves, intersections, bridge decks etc. to help motorists maintain better control of their vehicles in dry and wet conditions.

It is an affordable, highly effective life-saving solution to reduce crashes by creating surface friction on the road, particularly on wet, curved surface & accident prone spots.

***Zero Accident pledge – an ITS initiative***

# Road Safety redefined



## What is a High Friction Surface Treatment?

HFST is a life-saving safety enhancement. The process will bond to a variety of substrates, including asphalt and concrete pavements, shot-blasted steel and other clean, structurally sound surfaces. HFST dramatically increases the coefficient of friction, thereby increasing the skid-resistance of a pavement surface in dry and wet weather conditions. On roads treated with HFST, drivers benefit from drastically shorter stopping distances and greater traction on curves, on entrance and exit ramps, at intersections and on grades. HFST is reducing crash rates and saving lives.

iTrac HFST components comprise of an exothermic resin binder usually top dressed with a specialty grade of bauxite having a very high Polished Stone Value.

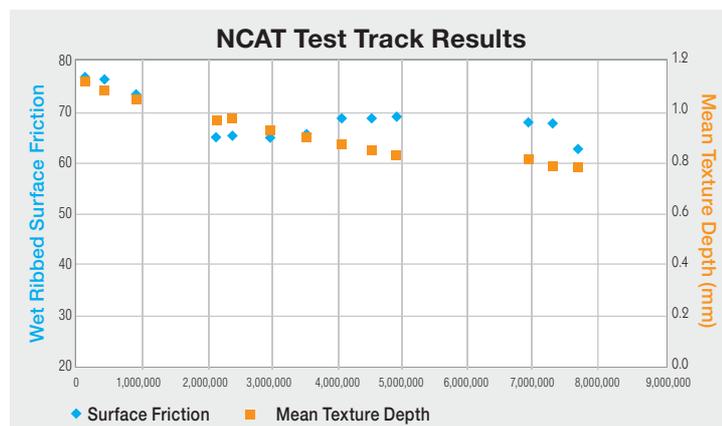
HFST application comprises of blending the binder system and applying it evenly to the road surfaces. Aggregate is then immediately applied over the binder, increasing the texture depth. The applied HFST allows more friction or grip to be formed between vehicle tyres and the pavement. This increased traction can greatly reduce accident and fatality rates on dangerous roadways. This aggressive finished surface is the ultimate skid-resistant road surface available currently.

## How does HFST Compare?

HFST should not be confused with other surfacing products or processes that are commonly used to rehabilitate and maintain pavements. HFST is not a chip-seal, slurry or micro-surface. Although many bituminous surfacing options are available to engineers, none can create the very high skid-resistance values achieved by HFST. Similarly, mechanical abrasion processes such as milling and grooving may be used to rehabilitate a substandard pavement, but they also cannot provide the extreme friction values achievable with HFST. In areas of known skid-related, "run-off-the-road," or wet-weather crashes, HFST should be considered as a solution to site-specific problem areas.

## National Center for Asphalt Technology (NCAT) Testing and Results

Attributes of HFST durability is evident after 18 million semi-truck multi-axle (Equivalent Single Axle Load – ESAL) impacts on a horizontal curve. The installed system is one of the longest running tests conducted by the track to date, with figures from NCAT showing friction readings still in the high 60's as of April 2010.



NCAT test results indicate that after four years of continual heavy truck impacts, HFST bauxite aggregate still demonstrates increased friction and skid-resistant values. Data provided by our technical partners DBI Services - USA

“...70% of wet pavement crashes can be affected by friction improvements” – U.S. Department of Transportation



## INDIA – the need for safer roads is critical and here is why...

Personal vehicle ownership and official road traffic fatality rates per 100 population

(source: WHO, 2015)

Country	MTW + Light 4 wheelers per 100 population	Official fatality rate per 100 population
<b>India</b>	<b>6*</b>	<b>11</b>
Australia	71	5.1
Canada	61	6
Chile	45	12
Greece	60	7.8
Hungary	32	6
Japan	69	4.5
Portugal	56	6
Sweden	56	2.7
United Kingdom	54	2.8

\* Vehicle ownership rate adjusted for number of actual vehicles on road.

Source: TRIPP IIT Delhi report

- » Road fatalities in India is a major contributor where mortality is concerned.
- » Cause for Road Fatalities is observed highest between the age group of 15 - 49 years.
- » The situation in India is worsening and Road Traffic Injuries (RTI) have been increasing over the past twenty years.
- » According to official statistics 141,526 persons were killed and 477,731 injured in road traffic crashes in India in 2014 (NCRB, 2015).
- » The Global Burden of Disease (GBD) estimates that there were 264,000 (95%CI:214,000-321,000) deaths in India in 2013 almost twice the deaths reported by traffic police (GBD 2013 Mortality and Causes of Death Collaborators, 2015).

## Fatality... A global concern

- » In USA - A recent AAA study calculated the cost of a fatal crash, at \$6 million per annum, the cost to the US taxpayer exceeds \$200 billion per annum.
- » The FHWA estimates the cost of a fatality to be \$9 million per annum.

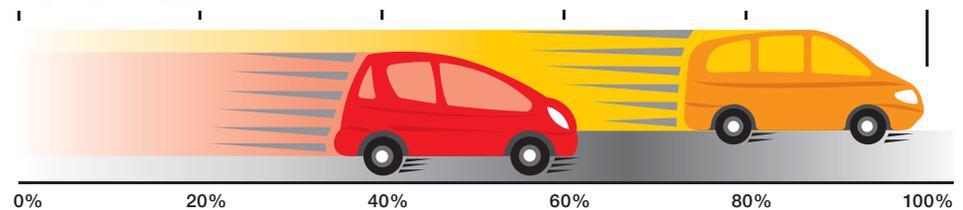
## Increasing Friction Can Reduce Crash Rates

iTrac HFST will adhere to asphalt, concrete and other substrates, and resists snow plowing and exterior surface contaminates. Trucks with high centers of gravity may overturn before losing control due to skidding, and trucks on downgrade curves often generate greater lateral, rather than forward, friction. iTrac HFST can compensate for this increase in side-to-side movement and hold trucks on the road.

### Preserving and Waterproofing Bridge Decks and other Structure

iTrac HFST application process also provides incredible durability and functionality on bridge decks by preserving and waterproofing these structures. HFST provides a secure transition over curved areas on bridges, overpasses and other potentially dangerous surface-to-surface interchanges.

## Advantages



HFST can reduce stopping distances upto 40% on dry roads and 70% on wet roads through friction improvements



The annual cost of human accidents and infrastructure in monetary terms is exceptionally high. HFST is an internationally proven to be the best known solution to save human lives.



Long lasting with high friction value for 10 years of service.



Can bring about a 43% reduction in all fatal and serious injury crashes.

### CASE STUDIES

1. The New York State Department of Transportation (NYSDOT) implemented a program to identify sites statewide with a low skid resistance and treat them with overlays as part of their maintenance program. A site was eligible for treatment if its 2-year wet accident proportion was 50% higher than the average wet crash proportion for roads in the same county. Between 1995 and 1997 NYSDOT treated 36 sites, which reduced the annually recurring wet road crashes by more than 800. These results and others throughout the State support earlier findings that treating wet-road crash locations can reduce this type of crash by 50% and reduce total crashes by 20%.

2. The Florida Department of Transportation (FDOT) treated a curved freeway ramp with a high friction material consisting of exothermic resin dressed with a bauxite. This treatment proved effective at increasing the skid-resistance value from 35 to 104. While the FDOT application was on a freeway ramp, the material may also be applicable to high volume curves with a greater than normal number of wet pavement crashes. The process is applicable on horizontal ramps with recorded wet/dry weather crashes.

Note: The treatment type and product example provided above does not imply validation or endorsement by the FHWA Office of Safety.





## APPLICATION AREAS

- ✓ Horizontal Curves
- ✓ Intersections
- ✓ Bridge Decks
- ✓ On-ramps
- ✓ High Occupancy Lanes
- ✓ School Zones
- ✓ Toll Authority Entrances
- ✓ Hospital Entrances
- ✓ Pedestrian Walkways
- ✓ Airport Runways / Taxiways / Airside

India has amongst the highest road fatalities in the world...

**Isn't it time we bring about a change?**

**HFST is an effective, proven and powerful solution that can help save lives... Its time to adapt !**

## Data Analysis of HFST application in the states of Michigan and Kentucky, USA

	3 years prior HFST		1 year after HFST		Reduction
	Wet	Dry	Wet	Dry	
Michigan DOT 4 locations	8	18	1	3	92%

	3 years prior HFST		3 years after HFST		Reduction
	Wet	Dry	Wet	Dry	
Fayette County – KY 922	8	5	1	0	91%
Oldham County – KY 22	53	3	5	0	91%
Fayette County – I75 Exit 113	18	10	0	1	96%

Data provided by our technical partners DBI Services - USA



## ITS Coatings conducts the First Trial in India

We were commissioned by the GMR Airport authorities to do a trial patch of HFST at a key location (round-about on the approach road to Hyderabad International airport) which was successfully completed in May 2016.

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We are proud to be associated with DBi services, USA the global leader in infrastructure operations and maintenance and the industry leaders of HFST projects.

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