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# The utilization of recycled asphalts in France

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Service d'études sur les transports, les routes et leurs aménagements

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## OUTLINE OF THE PRESENTATION

- 1- LAWS
- 2- CONSEQUENCES OF THE LAWS
- 3- HEALTH IMPACT

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## FRAMEWORK LAWS

Timeline events:

- 2007: Beginning of the Environment Round Table
- 9 Février 2009: Circulaire letter of the Ministry of ecology
- 25 mars 2009: Agreement between road industry and government
- 3 août 2009: Environment Round Table : Law 1
- 12 juillet 2010: Environment Round Table : Law 2

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## Environment Round Table (law 1 and 2)

- The aim of the environment Round Table is to define the key points of government policy on ecological and sustainable development issues for the coming five years.
- The law I and II consists to preserve biodiversity, natural environments, human health and non-renewable resources.

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## Road Work voluntary Agreement March 25, 2009

What's that? : Declination of the environmental Round Table Law in the field of Road work

Six signatories to this agreement :

- > The National Federation of Civil Engineering (FNTP)
- > The Professionnal Union of the earthwork indstry (SPTF)
- > The Union of Road Industry (USIRF)
- > Syntec- Civil Engineering (Syntec Ingénierie)
- > The French Ministry of ecology, sustanaible, developpement, Transport and Housing
- > The Association of department of France (ADF)

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## Road Work Agreement March 25, 2009

Ten Commitments

- > Preserve biodiversity and natural environments,
- > **Preserve non-renewable resources and develop the use of recycled mix,**
- > Reduce water consumption during the earthworks,
- > **Creation of the Institute Of Roads, Streets and Infrastructure for Mobility (IDDRIM),**
- > Develop research and disseminate innovation,
- > Improve road safety, safety of workers and neighbourh during the works,
- > Reduce emissions of greenhouse gases and energy consumption,
- > Increase the environmental performance of road,
- > Promote local versions of the national Road Work Agreement
- > Follow and evaluate commitments

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## Circular letter of the ministry of ecology February 9, 2009

Two recommendations

- Authorize the incorporation of 10 % of recycled asphalt in the asphalt concrete without type testing (NF EN 13108)
- Integration, into government contract, of criteria which encourage the use of recycled asphalt.

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## Consequences of the Framework Laws

- The use of recycled asphalt improved between 2008 to 2011.

Year	% of Recycled asphalt
2008	5.0
2009	6.0
2010	10.0
2011	14.0

- Writing of a technique guide for the utilization of recycled asphalt. 2 parts : material and type testing

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## ASBESTOS USED IN PAVEMENT

**When**  
- Between 1974 et 1995

**Why?**  
- Best resistance to fatigue  
- Best resistance to the tracking

**Who?**  
- SCREG: COMPOFLEX, MEDIFLEX, RUGOFLEX, DRAINOFLEX, BICOMPOFLEX

**How Many**  
- About 20 millions de m<sup>2</sup> of asbestos  
- 1 à 2 % asbestos in the coating

**Where**  
?

Health problem during milling, planing, and sampling

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## COAL TAR

- The tar was used in France from 1850 to 1975. It is no longer used today

Année	Nombre d'automobiles	Longueur des routes nationales (km)	Concentration moyenne de polluants	
			Benzène (µg/m <sup>3</sup> )	Styrolène (µg/m <sup>3</sup> )
1850	200	-	-	-
1860	100	-	-	-
1870	1 000	-	-	-
1880	1 000	-	-	-
1890	20 000	-	-	-
1900	30 000	-	-	-
1910	100 000	100	1 000	-
1920	200 000	200	2 000	-
1930	400 000	400	4 000	20 000
1940	600 000	600 000	60 000	3 000
1950	1 000 000	10 000	100 000	40 000
1960	2 000 000	20 000	200 000	80 000
1970	3 000 000	30 000	300 000	120 000
1980	4 000 000	40 000	400 000	160 000
1975	-	-	500 000	2 000 000

- It is no longer used today

Health problems occur each time the tar is heated

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## Bituminous asphalt with medium level of PAH

- There is a threshold level value for the protection of the ground water (50 ppm)
- There is not a threshold level value for the health of the workers.
- The problematic is to find a threshold level value for the health of the workers (50, 100, 200 ppm of PAH in the bituminous asphalts?)

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## Working Group « Road Work – Health Impact »

Composition

- The National Federation of Civil Engineering (FNTP)
- The Union of Road Industry (USIRF)
- The French Ministry of ecology, sustainable, développement, Transport and Housing
- The National Institute for research, health and Safety (INRS)
- The National Health Insurance fund (CNAMTS)
- The Professional Organisation specialized to building industry and civil engineering
- French Agency for Food, Environmental and Occupational Health and Safety (ANSES)

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Framework laws	Results	Health Impact
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## Working Group « Road Work – Health Impact »

Working group is divided in 3 tasks groups : Tasks Group

- > **Characterization** : development of a method to assess the probability of presence of asbestos and tar in the pavement
- > **Formulation and Manufacturing** : Write a material Safety Data Sheet for all coated mix
- > **Methodology** : Propose methods for prevention for the interventions on roads or highways

results expected late 2012

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