

MCPP-SZ 中国本地化产品THERMORUN®的介绍

- 安全气囊材料的介绍

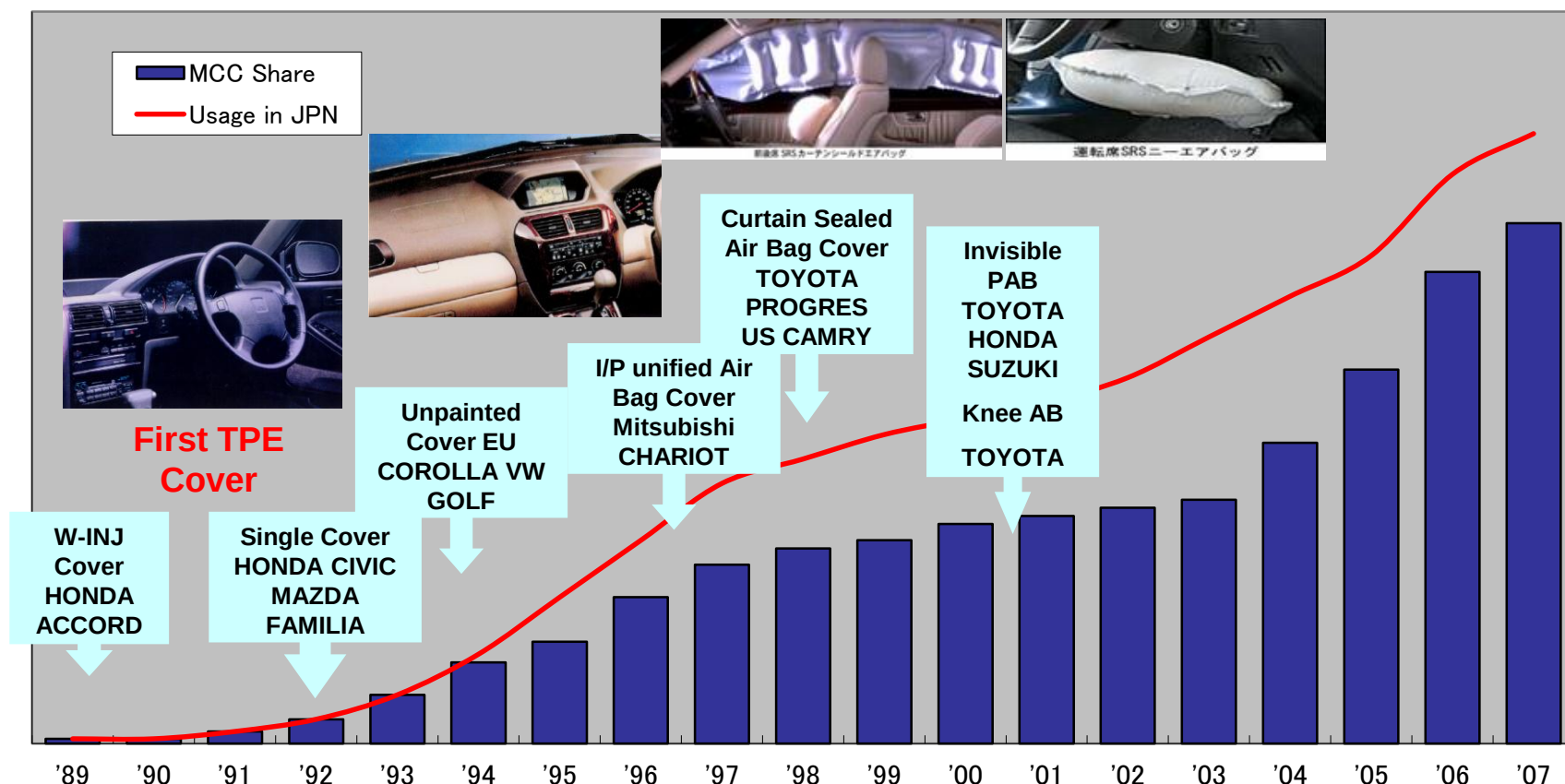
三菱化学株式会社
Mitsubishi Chemical Corporation (MCC)

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三菱化学安全气囊材料的生产的历史

- 1988年首次生产安全气囊盖(Honda / AB Integrator)
- 在日本是第一个生产TPE安全气囊盖的厂家
- 在日本占有大概80%的市场份额, 并且在该行业处于领先地位已经超过20年
- 在北美占有大概60%的市场份额



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三菱化学功能塑料有限公司(苏州)

- 地址:江苏省苏州市新区华山路148号
- 公司成立:2002年5月
- 占地面积:37,000平方米
- 生产产品:3条PVC生产线
1条TPO生产线



THERMORUN材料的生产状况:
 2012年5月: 试产
 目前: THERMORUN产品已经进行
 商业量产

APZ/China *Localization of THERMORUN®*

- Material development for Airbag-Cover grade -

MIC cover (DAB, PAB, KAB)



APZ/China *Localization of THERMORUN®*

- Material development for Airbag-Cover grade -

Paint cover (DAB, PAB, KAB), Chute (inner cover), SAB



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1.Mar.2011

Result of deployment test under cold temperature according to each OEM conditions

	OEM	Inner cover	Paint cover	MIC cover
-35 C with 1-3 min. Window	GM	TT860B3Z	TT914BZ	TT914Z
	Ford			
	Chrysler			
	Hyundai	TT850BZ	TT850BZ	TT827Z
	Toyota			
	Honda	TT824BZ	TT824BZ	
-40 C with 2-5 min. window	Nissan			
	Mazda	TT875BZ	TT875BZ	
	Suzuki			
	China local OEMs	TT935BZ	TT935BZ	TT954Z
- 35 C in chamber	BMW	TT824BZ	TT824BZ	TT827Z
	VW			
	China local OEMs	TT875BZ	TT850BZ	
		TT935BZ	TT935BZ	TT954Z ^{*1)}

•This is the results under each OEM's deployment test. Deployment test results depend on the airbag design also.

1) TT954 is formulated to pass -35C deployment condition, but it has not actually tested at -35C in chamber.

APZ/China *Localization* of THERMORUN®

- Material development for Airbag-Cover grade-

Physical Properties of THERMORUN® for Paint, Inner cover (chute), Side AB and Curtain AB Application

Test Items	Test Methods	Units	Paint, Inner cover (chute), SiAB and CAB)					
			TT824BJ	TT914BJ	TT860B3J	TT935B1J	TT850BJ	TT875B
MFR [230C, 2.16kg]	ISO 1133	g/10min	9	7	16	7	10	12
Density	ISO 1183 Method A	g/cm ³	0.89	0.89	0.88	0.89	0.89	0.89
Tensile Strength at Break	ISO 37 Type 1A 500 mm/min	MPa	10	12	12	12	12	13
Tensile Elongation at Break		%	690	720	740	700	730	770
Flexural Modulus	ISO 178	MPa	310	330	400	400	440	470
Izod Impact Strength [-40 C]	ISO 180	KJ/m2	83 (P)	84 (P)	81 (P)	86(P)	82 (P)	86 (P)
Mold Shrinkage * Recommended value	MCC Method	1/1000	6 - 8	13 - 15	3 - 6	5-8	6 - 8	5 - 7
<i>Counterpart Products Produced in USA</i>			TT824B	TT914B	TT860B3	TT935B	TT850B	TT875BU
<i>Counterpart Products Produced in Europe</i>			TT824BE	TT914BE	TT860B3E	TT935BE	TT850BE	TT875BE
<i>Counterpart Products Produced in China (under development)</i>			<i>TT824BZ</i>	<i>TT914BZ</i>	<i>TT860B3Z</i>	<i>TT935BZ</i>	<i>TT850BZ</i>	<i>TT875BZ</i>
<i>Counterpart Products Produced in Thailand (under development)</i>			<i>TT824BT</i>	<i>TT914BT</i>	<i>TT860B3T</i>	<i>TT935BT</i>	<i>TT850BT</i>	<i>TT875BT</i>

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*These values above are one of the measurement values at MCC laboratory, not specification.

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Physical Properties of THERMORUN® for Paint, Inner cover (chute), Side AB and Curtain AB Application

Test Items	Test Methods	Units	<i>Paint, Inner cover (chute), SiAB and CAB)</i>					
			<i>TT824BZ</i>	<i>TT914BZ</i>	<i>TT860B3Z</i>	<i>TT935B1Z</i>	<i>TT850BZ</i>	<i>TT875BZ</i>
MFR [230C, 2.16kg]	ISO 1133	g/10min	9	7	15	7	10	10
Density	ISO 1183 Method A	g/cm ³	0.89	0.89	0.89	0.89	0.89	0.89
Tensile Strength at Break	ISO 37 Type 1A 500 mm/min	MPa	10	10	11	12	12	13
Tensile Elongation at Break		%	750	600	750	600	750	720
Flexural Modulus	ISO 178	MPa	310	330	400	400	440	470
Izod Impact Strength [-40 C]	ISO 180	KJ/m2	87(P)	84 (P)	81 (P)	86(P)	82(P)	83 (P)
Mold Shrinkage * Recommended value	MCC Method	1/1000	6 - 8	13 - 15	3 - 6	5-8	6 - 8	5 - 7

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- Material development for Airbag-Cover grade-

Physical Properties of THERMORUN® for MIC (for Non-Paint)

Test Items	Test Methods	Units	MIC (for Non-Paint)		
			TT827J	TT914J	TT954
MFR [230C, 2.16kg]	ISO 1133	g/10min	15	7	8
Density	ISO 1183 Method A	g/cm ³	0.92	0.89	0.89
Tensile Strength at Break	ISO 37 Type 1A 500 mm/min	MPa	10	13	11
Tensile Elongation at Break		%	710	710	700
Flexural Modulus	ISO 178	MPa	250	330	260
Izod Impact Strength [-40 C]	ISO 180	KJ/m2	80 (P)	84 (P)	86 (P)
Mold Shrinkage * Recommended value	MCC Method	1/1000	7 - 9	13 - 15	10 - 12
Counterpart Products Produced in USA			TT827	TT914	TT954U
Counterpart Products Produced in Europe			TT827E	TT914E	TT954E
Counterpart Products Produced in China (under development)			(TT827Z)	TT914Z	TT954Z
Counterpart Products Produced in Thailand (under development)			(TT827T)	TT914T	TT954T

APZ/China *Localization* of THERMORUN®

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Physical Properties of THERMORUN® for MIC (for Non-Paint)

Test Items	Test Methods	Units	MIC (for Non-Paint)		
			TT827Z	TT914Z	TT954Z
MFR [230C, 2.16kg]	ISO 1133	g/10min	15	7	8
Density	ISO 1183 Method A	g/cm ³	0.92	0.89	0.89
Tensile Strength at Break	ISO 37 Type 1A 500 mm/min	MPa	10	12	10
Tensile Elongation at Break		%	730	720	700
Flexural Modulus	ISO 178	MPa	250	330	260
Izod Impact Strength [-40 C]	ISO 180	KJ/m2	84 (P)	84 (P)	86 (P)
Mold Shrinkage * Recommended value	MCC Method	1/1000	7 - 9	13 - 15	10 - 12

*These values above are one of the measurement values at MCC laboratory, not specification.