



ATS Packaging catalogue

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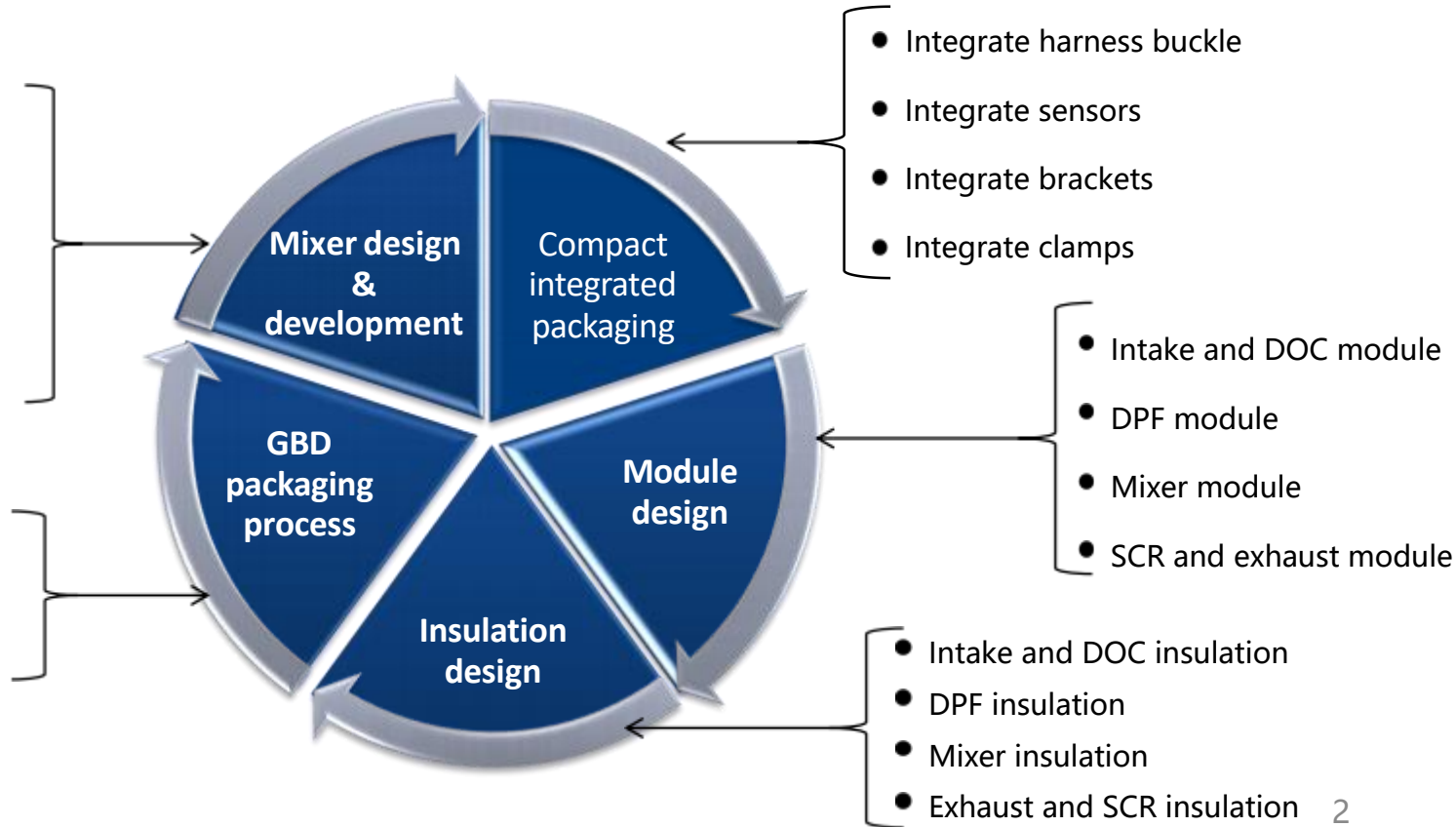
F-DIESEL POWER CO., LTD

HD After-Treatment System (ATS) Packaging Profile

ATS Development Capability

- CFD,FEA
- Mixer Design
- Mixer CAE
- Mixer Performance Optimization
- Mixer Deposit Test

- DOC GBD
- DPF GBD
- SCR GBD



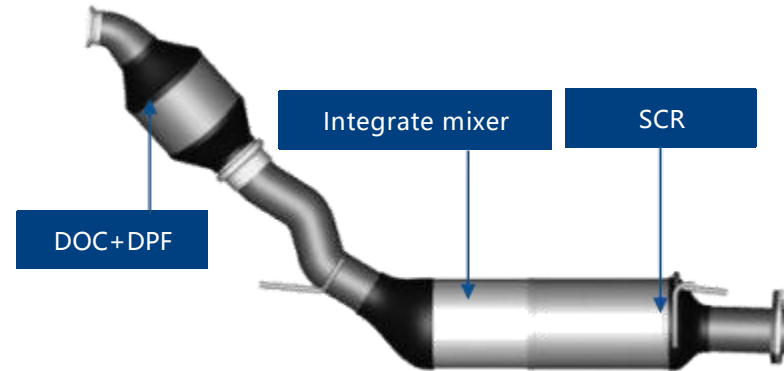
ATS Product Architecture

LD 2.0-3.8L		Single Module	7.5" Cat (DOC/DPF/SCR)
LD 3.8-5L		Single Module Flex Module	9.0" Cat (DOC/DPF/SCR)
MD 5-8L		Single Module Flex Module	10.5" Cat (DOC/DPF/SCR)
MD 8-10L		Flex Module	10.5" Cat (DOC/DPF/SCR)
HD > 10L		Flex Module	12.0" Cat (DOC/DPF/SCR)

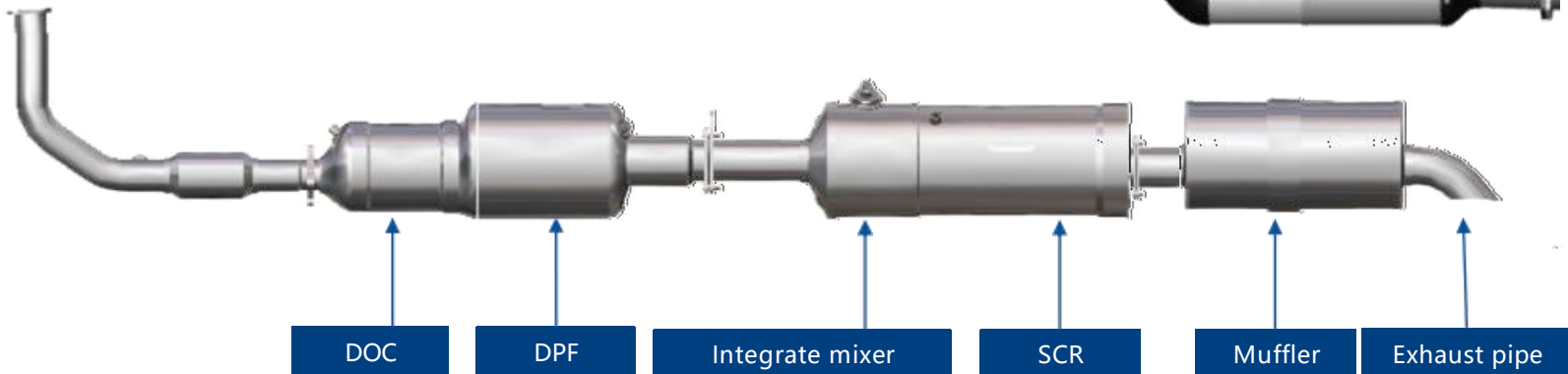
Packaging-LD

- **Single module: DOC+DPF+Mixer+SCR+ASC**

Layout: Tightly coupled + chassis

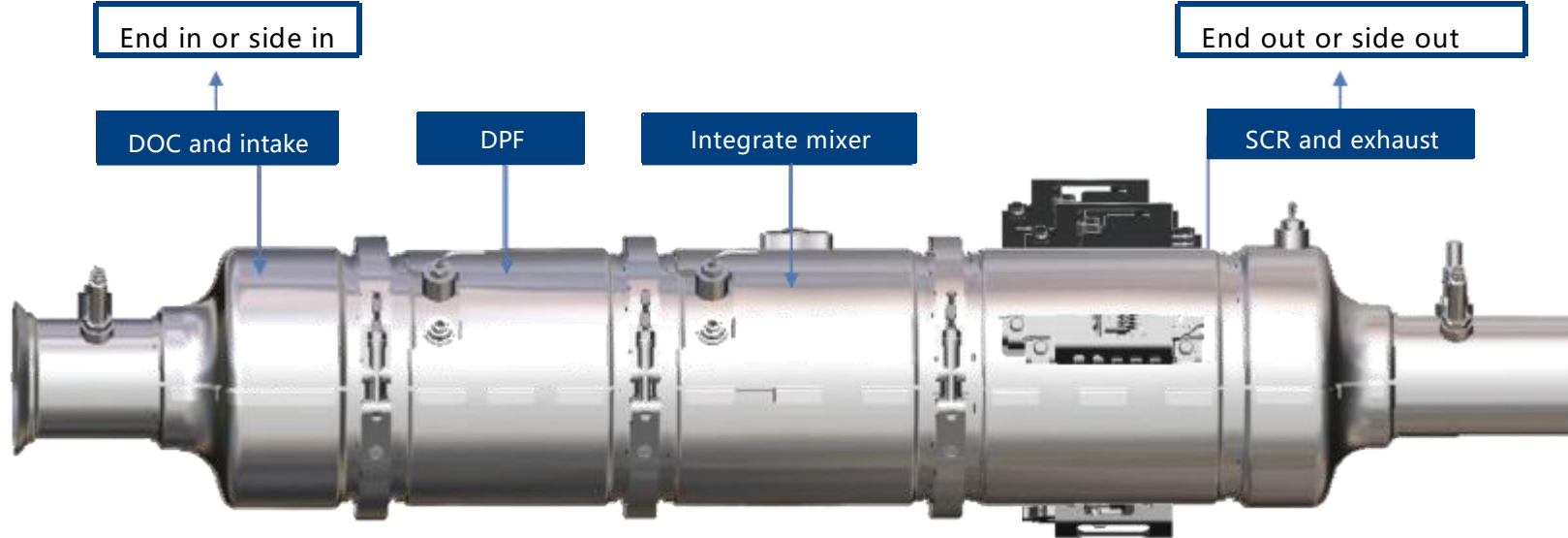


Layout: Tightly coupled + chassis



Packaging-LD/MD

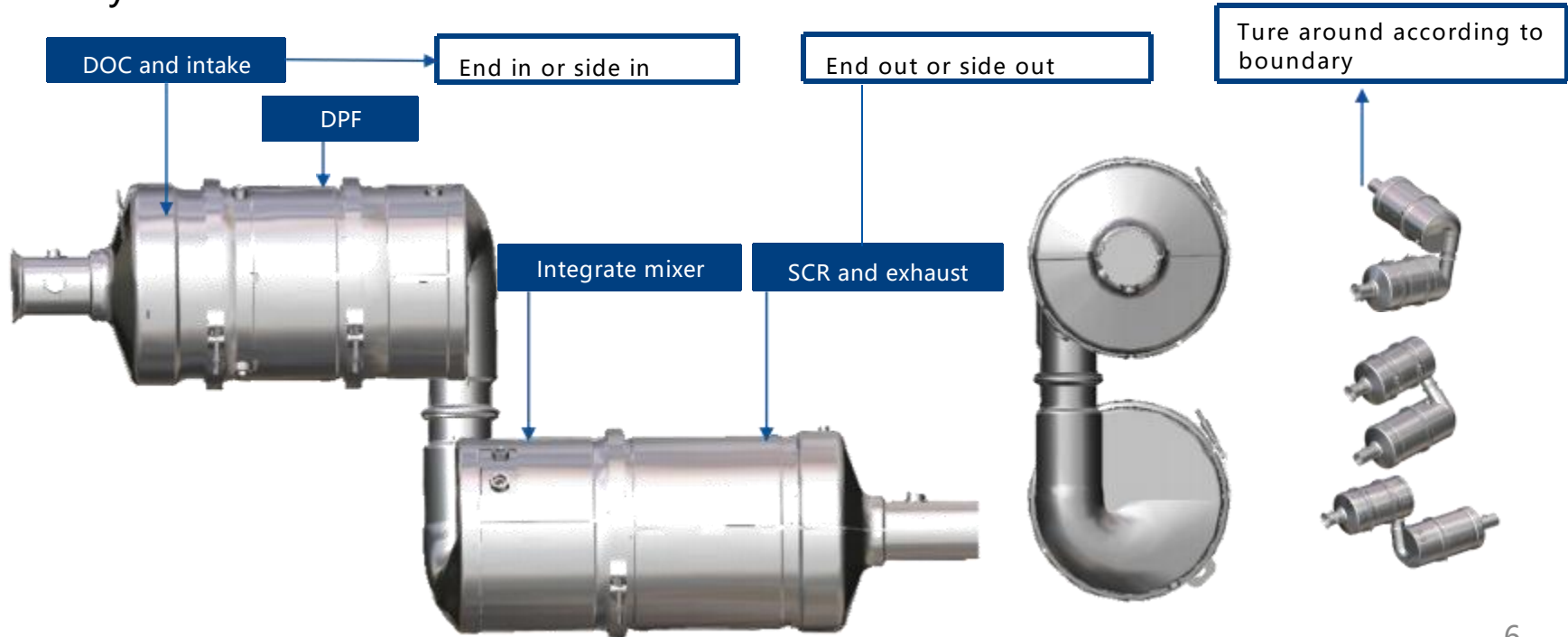
- **Single module: DOC+DPF+Mixer+SCR+ASC**
Layout: chassis



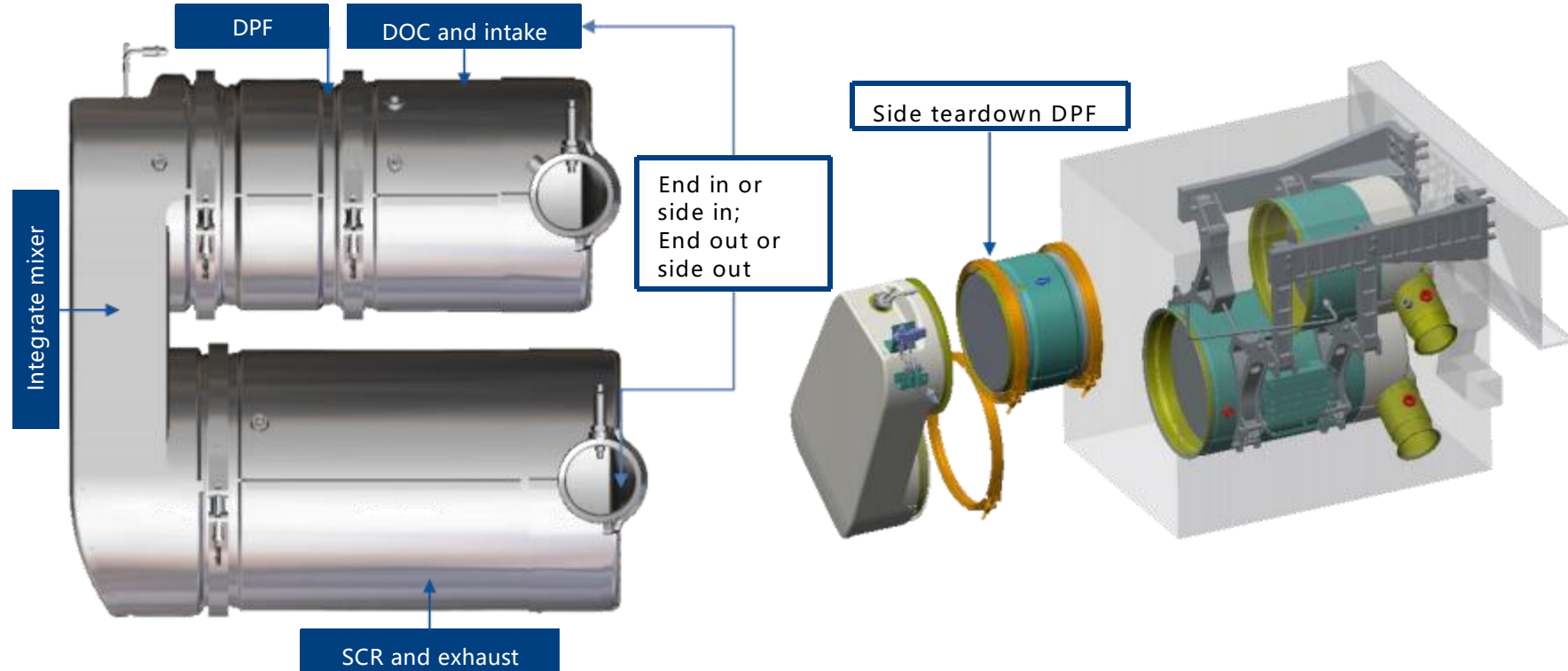
Packaging-MD/HD

- U shape: DOC+DPF+Mixer+SCR+ASC

Layout: chassis



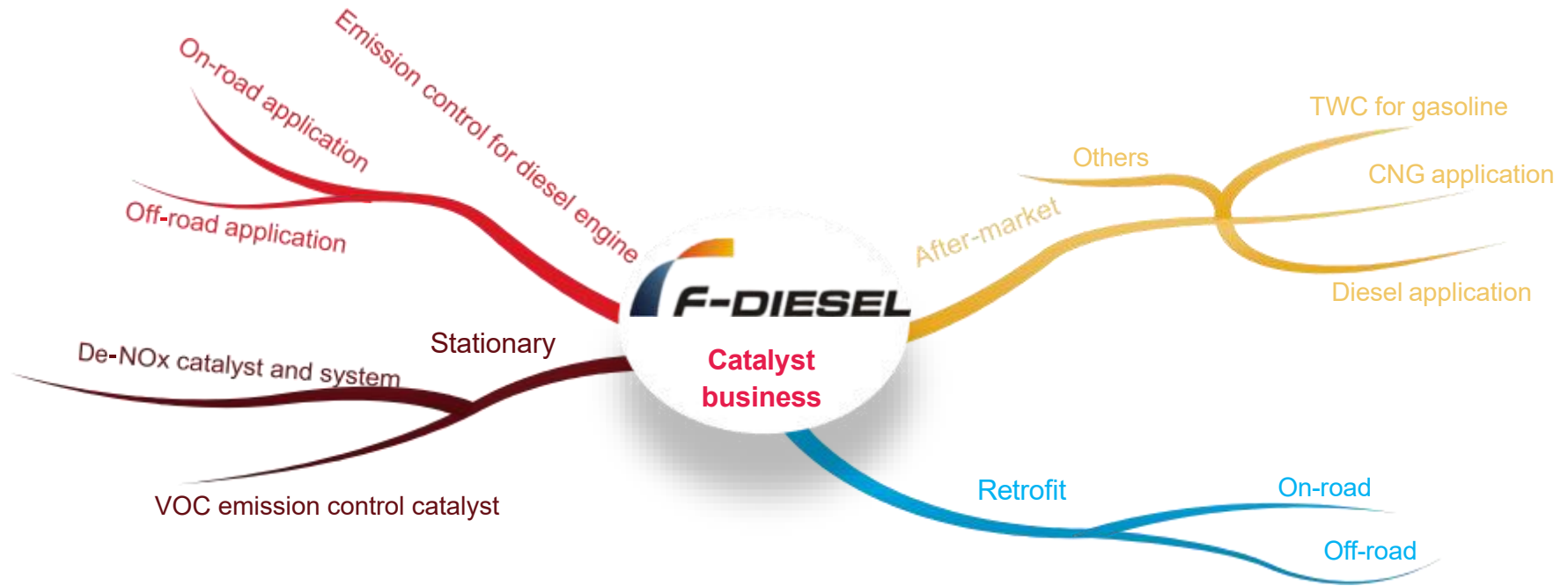
Packaging-MD/HD



Final Products

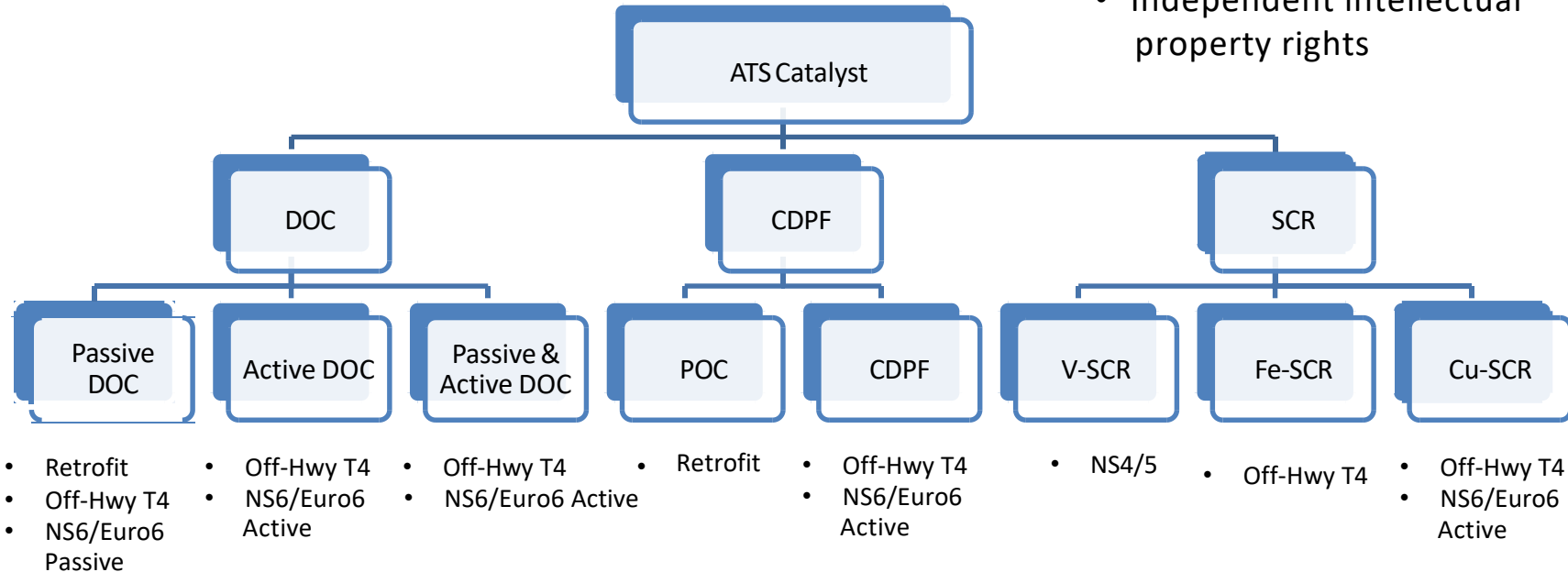


Catalyst Business



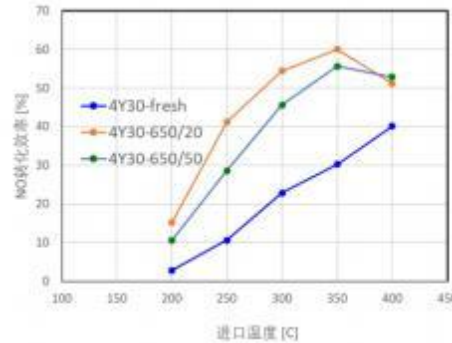
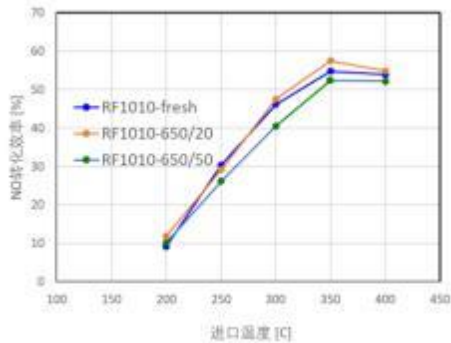
Catalyst Product

- All series of catalyst products
- Independent intellectual property rights

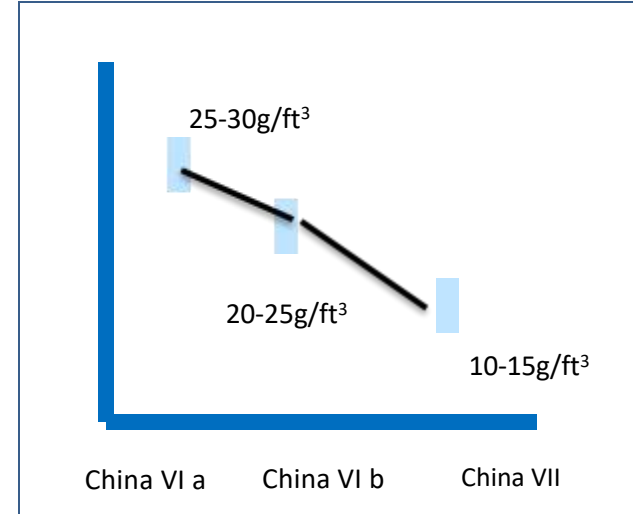


Product Category - DOC

- DOC development
 - Strengthen NO oxidation performance
 - Decrease fuel oxidation temperature
 - And decrease PGM loading



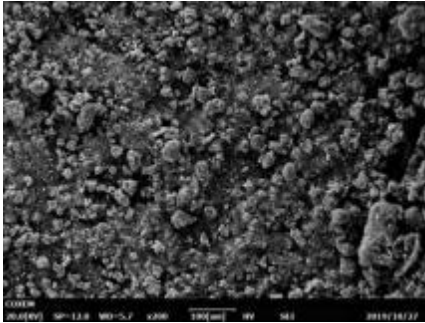
- FD DOC RF1010 has more stable NO oxidation performance from fresh to aged



- PGM can be reduced to 15g/ft³ potentially

Product Category – DPF/CSF

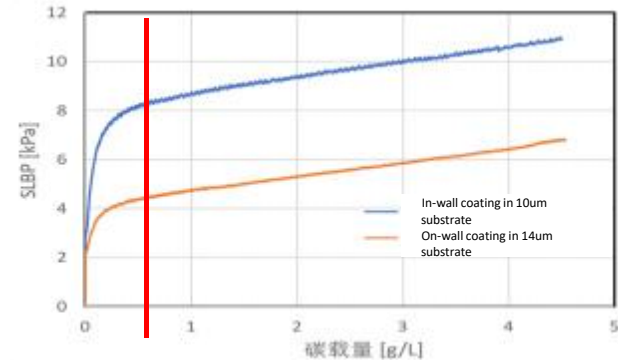
- CSF development
 - PN emission control
 - SLBP control



	In-wall	In-wall +pre-condition	On-wall 1	On-wall 2
1st WHTC	NA	7.38E+11	5.90E+11	3.31E+11
2nd WHTC	NA	5.75E+10	8.25E+10	6.11E+10
3rd WHTC	NA	4.07E+10	5.24E+10	5.25E+10
PN efficiency [%]	93.3	98.8	99.0	99.5

Substrate : NGK, 12x12, 558HG
Engine : Cummins ISX

- Developed on-wall coating can meet PN regulation without any pre-condition;
- On-wall coating can control PN emission and the SLBP is lower than normal in-wall coating.



Product Category – SCR

- **Cu-SCR development**
 - Widen the temperature window
 - Develop local supplier chain

FD vs global supplier 1 (Fresh)

	Global ref.	FD
150	48.2	55.8
200	92.2	96.2
250	99.6	100.0
400	99.4	100.0
500	90.6	90.0

FD vs global supplier 2

	Fresh			650C-100h,10%H2O	
	Global ref.	FD		Global ref.	FD
200	96.4	96.5		90.2	93.4
250	100.0	100.0		99.8	100.0
350	100.0	100.0		100.0	100.0
450	97.5	98.5		98.0	100.0
500	91.7	93.9		97.0	99.2

- **Our product has competitive performance as global suppliers with local materials**