

Cabin Air Filter Rating in China

CATARC CN 95 → New supplement Sept 2020

What's new: “ Now also available for Combifilters”

Ulrich Stahl

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Cabin Air Filter Rating in China

INTRODUCTION

- due to the novel corona virus impact, China launched a new certification service, the “Automotive Air Conditioning Filter Rating” certification in February 2020.
- This new certification is a voluntary certification, not a China national mandatory standard
- The certification organization for this “CN95 class” cabin air filter rating is the China Automotive Advantech Certification (Tianjin) Co., Ltd., which is a subordinate to the China Automotive Technology and Research Center Co., Ltd. (CATARC).
- China Automotive Technology & Research Center Co., Ltd. (CATARC) is an enterprise directly under the state-owned Assets Management Committee of the State Council.
- In September 2020 a second test certification procedure for Combifilters was added.

CATARC offers two different test standard certificates

Cabin Air Filter Rating in China

Existing certification "...-019" for **particle filter**



Implementation Rules for CATARC Mark Certification

Automotive Air Conditioning Filter Rating

(CAC-PV18-019: 2020)

Release date: February 12, 2020

Implementation date: February 12, 2020

New supplement "...-055" for **Combifilter**



CN95 汽车多效空调滤清器认证实施
规则

(CAC-PV18-055: 2020)

发布日期: 2020年09月07日

实施日期: 2020年09月07日

版本编号: 01

FREUDENBERG FILTRATION TECHNOLOGIES

 **FREUDENBERG**
INNOVATING TOGETHER

Test CAC-PV18-019: February 2020 → for Particle Filter only



Implementation Rules for CATARC Mark Certification

Automotive Air Conditioning Filter Rating

(CAC-PV18-019: 2020)

Release date: February 12, 2020

Implementation date: February 12, 2020

7.3.2 Initial pressure drop

At different test air flow, the initial pressure drop of the air conditioning filter shall comply with the corresponding category in the table below.

The test is conducted according to the requirements of GB/T 32085.1-2015 or QC/T 998-2015.

Test air flow, m ³ /h	Initial pressure drop, Pa
150	≤30
300	≤70
450	≤130
600	≤220

7.3.3 Ash collected quantity

When the test air flow is 300m³/h (or the flow rate designated by the manufacturer), the "ISO 12103-A2" dust test is used. When the pressure drop has increased by 200Pa, the ash collected quantity of the air conditioning filter shall not be less than 8g.

The test is conducted according to the requirements of GB/T 32085.1-2015 or QC/T998-2015.

7.3.4 Fractional filtration efficiency

When the test air flow is 300m³/h (or the flow rate designated by the manufacturer), the "ISO 12103-A2" dust test is used. The air conditioning filter efficiency shall comply with the corresponding category in the table below.

The test is conducted according to the requirements of GB/T 32085.1-2015 or QC/T 998-2015.

Aerodynamic diameter, μm	Fractional filtration efficiency, %				
	≥60	≥70	≥80	≥90	≥95
≥0.3	≥60	≥70	≥80	≥90	≥95
≥2.5	≥75	≥85	≥90	≥95	≥95
≥10	≥90	≥90	≥95	≥95	≥95
Filter rating	CN60	CN70	CN80	CN90	CN95

CAC-PV18-019 from Feb 2020:

- Pressure drop limits very low
- Only for particle filters
- No adsorption performance specified

Issue:

Combifilter with high gas adsorption performance and higher pressure drop don't get the CATARC certification

CATARC Huacheng Certification (Tianjin) Co., Ltd.

FREUDENBERG FILTRATION TECHNOLOGIES

The automotive cabin air filter is certified with different levels (CN60, ..., CN95).



New Test CAC-PV18-055: September 2020 → for Combifilter

- New supplement allows combifilters to get the certificate
- 2 different types (I / II) specified (difference in particle efficiency and adsorption performance)
- Certificate will show: CN95 Type I or II “Multi-Air Conditioning Filter”

7 认证结果评价要求

7.1 I型多效空调滤清器要求

依据第5节型式试验要求进行测试，测试结果应满足表7.1。

表 7.1 I型多效空调滤清器要求 Type I combi filter performance requirements

测试项目 Item	指标要求 Requirement
材料气味 Material odor	≤3 级
初始压力降 Pressure drop	150 m³/h 下 ≤65 Pa; 300 m³/h 下 ≤110 Pa; 450 m³/h 下 ≤190 Pa; 600 m³/h 下 ≤300 Pa.
储灰量 DHC A2 dust at 300m³/h	≥8 g
颗粒过滤效率 A2 dust at 300m³/h	0.3 μm 颗粒过滤效率 ≥95%; 2.5 μm 颗粒过滤效率 ≥95%; 10 μm 颗粒过滤效率 ≥95%.
气体吸附性能 Gas adsorption performance 150m³/h	(1) 甲苯: 零时效率 ≥70%; 1min 效率 ≥60%; 5min 效率 ≥40%; 容污量 ≥11 g. (2) 二氧化硫: 零时效率 ≥65%; 1min 效率 ≥40%; 5min 效率 ≥20%; 容污量 ≥1.5 g.

➤ Pressure drop limits adjusted

➤ Gas adsorption included

7.2 II型多效空调滤清器要求

依据第5节型式试验要求进行测试，测试结果应满足表7.2。

表 7.2 II型多效空调滤清器要求 Type II combi filter performance requirements

测试项目 Item	指标要求 Requirement
材料气味 Material odor	≤3 级
初始压力降 Pressure drop	150 m³/h 下 ≤65 Pa; 300 m³/h 下 ≤110 Pa; 450 m³/h 下 ≤190 Pa; 600 m³/h 下 ≤300 Pa.
储灰量 DHC A2 dust at 300m³/h	≥8 g
颗粒过滤效率 A2 dust at 300m³/h	0.3 μm 颗粒过滤效率 ≥85%; 2.5 μm 颗粒过滤效率 ≥90%; 10 μm 颗粒过滤效率 ≥95%.
气体吸附性能 Gas adsorption performance 150m³/h	(1) 甲苯: 零时效率 ≥90%; 1min 效率 ≥85%; 5min 效率 ≥80%; 容污量 ≥19 g. (2) 二氧化硫: 零时效率 ≥90%; 1min 效率 ≥75%; 5min 效率 ≥45%; 容污量 ≥3 g.

Conclusion

Background:

CATARC CN95 certificate is viewed in China as quality criteria for high performance Cabin Air Filters to protect people during the Corona pandemic (obvious reference to N95 face mask for marketing reasons only – but no technical similarities!)

Before September supplement “...-055” of the CATARC standard:

Many foreign Automotive OEMs failed to get a CATARC certification for existing combifilters

- many OEMs got disadvantages in China due to missing certificate

After the publication of the supplement “...-055” in September 2020:

Now more foreign OEMs can pass the CATARC certification test and can market their cars with CN95 Cabin Air Filter performance

CATARC certification does now include tests for most of the relevant cabin air contaminants.

- the CATARC supplement “...-055” was released with the support of Freudenberg China.