



ACCREDITATION SCHEME FOR  
PRODUCT CERTIFICATION BODIES

**CT 05**  
**SAC CRITERIA FOR CERTIFICATION**  
**BODIES (READY-MIXED CONCRETE)**

CT 05, 29 March 2019  
The SAC Accreditation Programme is managed by Enterprise Singapore

© All rights reserved

## CONTENTS

		<u>Page</u>
1	Introduction	1
2	Definitions	1
3	Recommendation after an Initial Inspection	1
4	Recommendation after a Surveillance or Recertification Inspection	3
5	Suspension of Concrete Composition	4
6	Inspector Days	4
7	Collection of Samples for Spot Tests	6
8	RMC Inspectors	6
9	Transfer of Certificate	6
10	Recorded Data and other Documents	7
Annex 1a	Certificate of Conformity	8
Annex 1b	Certificate of Conformity (Conditional)	12
Annex 2	Criteria for RMC Inspectors	13

## **1 Introduction**

- 1.1 This document specifies the additional definitions and supplementary criteria for the certification of ready-mixed concrete (RMC), and are to be used with ISO/IEC 17065 and the applicable IAF Guidance.

## **2 Definitions**

The following definitions apply:

- 2.1 **Minor nonconformity**  
Failure to meet one requirement of SS EN 206 and its Singapore complementary standards or other reference documents, and which is considered not to constitute a risk to the quality of ready-mixed concrete that a producer is supplying
- 2.2 **Major nonconformity**  
Deviation of product from specified requirements or the absence of, or failure to implement and maintain one or more required production control system requirements, or a situation which would, on the basis of available objective evidence raise significant doubt as to the conformity of the ready-mixed concrete that a producer is supplying
- 2.3 **Plant** - Plant for the production and supply of concrete for structural use which can be located on the construction site or off-site
- 2.4 **Producer** - Person or body producing fresh concrete for structural use
- 2.5 **Ready-mixed concrete** - Concrete in a fresh state that is manufactured in a batching plant either off- site or on- site, and supplied for use in an unhardened form

## **3 Recommendations after an Initial Inspection**

(Refers to ISO/IEC 17065 Clause 7.4 – Evaluation)

There are four possible recommendations after an initial inspection:

- 3.1 Certification will be recommended. No nonconformity was found during the certification visit. A sample of the certificate issued to a RMC producer is given in Annex 1a.

### Certification of New Plant

- a) A newly commissioned plant would be subjected to an initial inspection and issued a conditional certificate with one year validity, provided the inspection is satisfactory. (Reference: SAC CT 06 Paragraph 6.1).
- b) A sample of the conditional certificate issued to a RMC producer is given in Annex 1b. Both SAC and CB marks can be used on the conditional certificate.
- c) When the plant is issued with a full certificate, the date of issue will be based on the date of approval by the certification body. (Reference: SAC CT 06 paragraph 6.3).

### Extension of scope

- a) Based on initial test data provided by the producer, the certification body can issue a conditional scope with one year validity for the new concrete composition. (Reference: SAC CT 06 paragraph 7.2).
- b) A sample of the conditional scope issued to a RMC producer is given in Annex 1a (Appendix page 3 of 3).
- c) When the plant is issued with a full scope, the date of issue will be based on the date of approval by the certification body. (Reference: SAC CT 06 paragraph 7.3).

- 3.2 Certification will be conditional subject to the successful implementation of corrective actions for the minor nonconformities.

These minor nonconformities which do not cumulatively indicate a major failure of the production control system and product quality. Certification will be recommended after receipt of a letter which gives satisfactory details of correction and corrective action which will be implemented to remove the nonconformities from the system. The time limit for the receipt of the letter will be two weeks from date of inspection. Correction and corrective action shall be implemented within one month and verified to be satisfactory by the inspector.

- 3.3 Certification will be conditional subject to the successful implementation of corrective actions for the major nonconformity or a number of systematic minor nonconformities. These nonconformities accumulate to indicate a major failure of the production control system and product quality. The applicant will be required to submit a letter which gives satisfactory details of correction and corrective action which will be implemented to remove the nonconformities from the

system. The time limit for the receipt of the letter will be two weeks from date of inspection.

Correction and corrective action shall be implemented within three months from date of inspection.

Certification will not be recommended until the nonconformities have been removed from the system and a satisfactory partial re-inspection has been carried out.

If the applicant is not ready for the partial re-inspection within six months from the date of initial inspection, the application will be lapsed. A new application may then be made.

- 3.4 Certification will not be recommended. A major nonconformity or a number of systematic minor nonconformities which accumulate to indicate a major failure of the production control system and product quality. The extent of the systems failure is considered by the inspector to require more than six months for correction. The applicant will be required to re-apply after a period of at least six months from the date of inspection.

#### **4 Recommendations from a Surveillance or Recertification Inspection**

There are four possible recommendations after a surveillance or recertification inspection:

- 4.1 Certification will be confirmed or renewed. The plant complies with the certification criteria with no nonconformity.
- 4.2 Certification will be conditionally confirmed or renewed. A number of minor nonconformities exist which do not cumulatively indicate a major failure of the production control system and product quality. Certification will be confirmed or renewed after receiving a letter from the producer stating details of the proposed correction and corrective action which to the judgment of the inspector, will remove the nonconformities from the system after successful implementation. The time limit from the receipt of the letter will be two weeks from date of inspection. Correction and corrective action shall be implemented within one month and verified to be satisfactory.

If the correction and corrective action are not implemented by the stipulated date, actions will be initiated to suspend certification.

- 4.3 Suspension of certification is recommended. A major nonconformity or a number of systematic minor nonconformities exist, which accumulate to indicate a major failure of the production control system and product quality. The producer will be required to submit a letter stating details of

the proposed correction and corrective action which to the judgment of the inspector, will remove the nonconformities from the system after successful implementation. The time limit for the receipt of the letter will be two weeks from the date of inspection. Inspector shall assess the correction and corrective action to ensure proposed action(s) are effectively implemented before certification is resumed or renewed.

A partial or full re-inspection, as directed by the inspector, will be required within three months before reinstatement or renewal of certification can be recommended.

- 4.4 Withdrawal of certification is recommended. A major nonconformity or a number of systematic minor nonconformities have not been removed from the system after the expiry of suspension of certification.

## **5 Suspension of Concrete Composition**

- 5.1 If the results of spot tests show that a particular concrete composition does not meet its specified criteria, the certification body shall request the producer to rectify the defects within a defined short period. The actions taken by the producer shall be verified by the certification body.
- 5.2 If appropriate, an extraordinary inspection and /or additional tests shall be conducted to verify the nonconformity(ies).
- 5.3 If the results of the extraordinary inspection are not satisfactory and / or if the additional tests failed the specified criteria, the certification body shall suspend this concrete composition from certification without undue delay.

## **6 Inspector days**

- 6.1 The inspector days for initial, surveillance and recertification inspections for each batching plant are:

### Initial or recertification inspection

- 1.5 inspector days (if the producer is certified to ISO 9001 by a SAC accredited QMS CB)
- 2.0 inspector days (if the producer is NOT certified to ISO 9001 by a SAC accredited QMS CB)

### Surveillance inspection

- 1.0 inspector day (if the producer is certified to ISO 9001 by a SAC accredited QMS CB)
- 1.5 inspector days (if the producer or is NOT certified to ISO 9001 by a SAC accredited QMS CB)

6.2 The date of the 1<sup>st</sup> surveillance shall be within 6 months from the completion date of the initial inspection.

(Note: The surveillance is conducted twice a year as indicated in SS EN 206:2014 Annex C page 70 Clause C.2.2.1)

6.3 Batching plants in same location

6.3.1 Inspector days for each subsequent batching plant using a different mixer in the same location and using the same constituent materials from the same sources as the first batching plant, would be reduced by 0.5 inspector day. Please see below for details:

Type of inspection	Batching plant	No of inspector days	
		producer is certified to ISO 9001 by a SAC accredited QMS CB	producer is NOT certified to ISO 9001 by a SAC accredited QMS CB
Initial or recertification	1 <sup>st</sup> plant	1.5	2.0
	2 <sup>nd</sup> plant	1.0	1.5
	3 <sup>rd</sup> plant, etc	1.0, etc	1.5, etc
Surveillance	1 <sup>st</sup> plant	1.0	1.5
	2 <sup>nd</sup> plant	0.5	1.0
	3 <sup>rd</sup> plant, etc	0.5, etc	1.0, etc

6.4 Extension of scope

For extension of scope to the same family type, on-site inspection is not necessary. The certification body would need to conduct at least a document review, including review of test report(s) before extending the scope of certification.

For extension of scope to a different family type, on-site inspection shall be conducted. The duration of on-site inspection is at least 0.5 inspector day, depending on the number of family types. The certification body shall justify the time spent on the inspection.

6.5 Combined audits

The certification body shall not reduce the duration of the RMC inspection when the inspection is conducted concurrently with an ISO 9001 audit. The certification body may reduce the audit days for the ISO 9001 audit with justifications.

## **7 Collection of Samples for Spot Tests**

### **7.1 Initial or recertification inspection**

For each batching plant, at least two batches of production samples (from different mixes) shall be taken during each initial or recertification visit.

For each batch of production sample, two samples shall be taken for testing. In addition, two backup samples shall be taken in case the first two samples fail the tests.

### **7.2 Surveillance inspection**

For each batching plant, at least one batch of production sample shall be taken during each surveillance visit.

For each batch of production sample, two samples shall be taken for testing. In addition, two backup samples shall be taken in case the first two samples fail the tests.

### **7.3 Extension of scope**

For each extension of scope where inspection is conducted, at least one batch of production sample shall be taken during each visit. This is regardless of the number of family types applied for extension of scope.

For each batch of production sample, two samples shall be taken for testing. In addition, two backup samples shall be taken in case the first two samples fail the tests

## **8 RMC Inspectors**

8.1 A certification body shall appoint qualified inspectors to conduct RMC inspection. Inspectors shall meet the criteria as indicated in Annex 2

8.2 In addition, all inspectors shall have attended training on the certification standards on RMC, organized by the Building and Construction Authority (BCA) or another organization providing an equivalent course.

## **9 Transfer of Certificate**

9.1 The transfer of certificate shall be based on IAF MD 2 – IAF Mandatory Document for the Transfer of Accredited Certification of Management Systems



## **10 Recorded Data and Other Documents**

- 10.1 The records of the production control shall be retained for at least 3 years unless legal obligations require a longer period. (Reference : SS EN 206:2014 Clause 9.3)

# CERTIFICATE OF CONFORMITY

## Ready – Mixed Concrete Certification

This Certificate is issued to

RMC Producer:

Name of RMC Producer

Address

Batching Plant: A or A and B

Address

**FOR**

**Ready-Mixed Concrete Products**

(See Appendix/ces for products and/or family/ies details)

***which has complied with the requirements of the scheme and based on the following:***

### **Standards**

SS EN 206 :YYYY

SS 544 : Parts 1 & 2:YYYY

SAC CT 06:YYYY

Product conformity certificates are awarded on the basis of an assessment of conformity control system and process control covering contract review, product design, production facilities, quality control system and testing of the product, all coupled with assessment of the supporting quality management system.

<Name of CB> is accredited by the Singapore Accreditation Council for certification in respect of Product Certification Systems (ISO/IEC 17065:YYYY and SAC CT05:YYYY)

**THIS CERTIFICATE IS VALID 3 YEARS FROM (day/month/year) to (day/month/year)**

Designation

<name of CB>

Certificate No	Date of Original Issue	Date of Last Revision	Date of Expiry
RMC 01	dd/mm/yyyy	---	dd/mm/yyyy

This Certificate is part of a full report and should be read in conjunction with it. This Certificate remains the property of <name of CB> and shall be returned upon request. The use of this Certificate is subjected to the terms and conditions of the Ready-Mixed Concrete Scheme. The manufacturer is solely responsible for compliance of any product that has the same designation as the product type-tested. Persons relying on this Certificate should verify its validity by checking <name of CB>'s website at <CB website>.

**READY-MIXED CONCRETE CERTIFICATION SCHEME**

**APPENDIX**

TO CERTIFICATE OF CONFORMITY NUMBER: RMC 01

RMC Producer:

Name of RMC Producer

Address

Batching Plant: A or A and B

Address

Issue Number: 01

Page 1 of 3

Date of Issue: dd-mm-yyyy

**Concrete Family 1: CEM I-A(name)**

**Cement: CEM I, Strength Class, source;**

**Aggregate: Granite, D<sub>max</sub>20, source;**

**Admixture: Type, Source;**

**Table 1: Details of Family Members under CEM I-A**

Concrete Code	Strength Class	DC-Class	Max W/C	Min Cement Content	Chloride Content Class	Consistence Class	Remarks
A1	C25/30	-	0.65	260	Cl0.10	S3	
A2	C25/30	-	0.60	260	Cl0.10	S2	
A3	C28/35	-	0.60	280	Cl0.10	S3	
A4	C28/35	DC-2z	-	-	Cl0.10	S2	

Note: The family concept is not applied to concrete with strength classes higher than C55/67 for normal-weight and heavy weight concrete or LC55/60 for lightweight concrete.

Signed: \_\_\_\_\_

Designation  
<Name of CB>

Amendments or additions to this appendix other than those authorised by <name of CB> render the appendix invalid

**READY-MIXED CONCRETE CERTIFICATION SCHEME**

**APPENDIX**

TO CERTIFICATE OF CONFORMITY NUMBER: RMC 01

RMC Producer:  
Name of RMC Producer  
Address

Batching Plant: A or A and B  
Address

Issue Number: 01

Page 2 of 3

Date of Issue: dd-mm-yyyy

**Concrete Family 2: CEM III/A-A(name)**

**Cement: CEM III/A, Strength Class, source;**

**Aggregate: Granite, D<sub>max</sub>20, source;**

**Admixture: Type, Source;**

**Table 2: Details of Family Members under CEM III/A-A**

Concrete Code	Strength Class	DC-Class	Max W/C	Min Cement Content	Chloride Content Class	Consistence Class	Remarks
A1	C25/30	-	0.65	260	Cl0.10	S3	
A2	C25/30	-	0.60	260	Cl0.10	S2	
A3	C28/35	-	0.60	280	Cl0.10	S3	
A4	C28/35	DC-2	-	-	Cl0.10	S2	

Note: The family concept is not applied to concrete with strength classes higher than 55/67 for normal-weight and heavy weight concrete or LC55/60 for lightweight concrete.

Signed: \_\_\_\_\_

Designation  
<Name of CB>

Amendments or additions to this appendix other than those authorised by <name of CB> render the appendix invalid

**READY-MIXED CONCRETE CERTIFICATION SCHEME**

**APPENDIX (CONDITIONAL)**

TO CERTIFICATE OF CONFORMITY NUMBER: RMC 01

RMC Producer:

Name of RMC Producer

Address

Batching Plant: A or A and B

Address

Issue Number: 01

Page 3 of 3

Date of Issue: dd-mm-yyyy

**Individual Concrete Products**

**Table 3: Details of Concrete Products**

Concrete Code	Strength Class	Max W/C	Min Cement Content	DC Class	Max Aggregate Size	Chloride Content Class	Consistence Class	Cement Source / Strength Class	Aggregate type /Source	Admixture
H1	C60/75	-	-	DC-4z	D <sub>max</sub> 20	Cl0.10	S3	III/B / 42.5		
H2	C70/85	0.35	400	-	D <sub>max</sub> 20	Cl0.10	S2			

Note: The family concept is not applied to concrete with strength classes higher than C55/67 for normal-weight and heavy weight concrete or LC55/60 for lightweight concrete.

This Schedule is valid for 1 year from (day/month/year) to (day/month/year).

Conditional schedules are only awarded for new concrete families that have not generated enough test results as stated in Clause 7.2 of SAC CT 06:YYYY.

Signed: \_\_\_\_\_

Designation  
<Name of CB>

Amendments or additions to this appendix other than those authorised by <name of CB> render the appendix invalid

# CERTIFICATE OF CONFORMITY (CONDITIONAL)

## Ready – Mixed Concrete Certification

This Certificate is issued to

RMC Producer:

Name of RMC Producer

Address

Batching Plant: A or A and B

Address

**FOR**

**Ready-Mixed Concrete Products**

(See Appendix/ces for products and/or family/ies details)

***which has compiled, where applicable, with the requirements of the scheme and based on the following:***

**Standards**

SS EN 206: YYYY

SS 544 : Parts 1 & 2 :YYYY

SAC CT 06:YYYY

Conditional certificates are only awarded for newly commissioned batching plants that have not generated enough test results as stated in Clause 6.3 of SAC CT06:YYYY.

<Name of CB> is accredited by the Singapore Accreditation Council for certification in respect of Product Certification Systems (ISO/IEC 17065 YYYY and SAC CT 05:YYYY)

**THIS CERTIFICATE IS VALID 1 YEAR FROM (day/month/year) to (day/month/year)**

Designation

<name of CB>

Certificate No  
RMC 01

Date of Original Issue  
dd/mm/yyyy

Date of Last Revision  
---

Date of Expiry  
dd/mm/yyyy

This Certificate is part of a full report and should be read in conjunction with it. This Certificate remains the property of <name of CB> and shall be returned upon request. The use of this Certificate is subjected to the terms and conditions of the Ready-Mixed Concrete Scheme. The manufacturer is solely responsible for compliance of any product that has the same designation as the product type-tested. Persons relying on this Certificate should verify its validity by checking <name of CB>'s website at <CB website>.

## Criteria for RMC Inspectors

The summary of the criteria for RMC Inspectors is tabulated below.

Criteria	Inspectors
Personal Attributes	Demonstrate personal attributes for effective and efficient performance of audits / inspection
Formal Education	Minimum Diploma in Architecture, Building, Structural or Civil Engineering, or other related construction field
Other Qualifications	Have knowledge of current regulatory requirements and applicable Codes of Practice
Work Experience	<p><u>Degree holders</u>            Minimum <b>3 years</b> full time working experience which includes</p> <ul style="list-style-type: none"> <li>at least <b>2 years</b> full time work experience in construction-related concrete industry in a technical, professional or supervision position OR</li> <li>minimum <b>2 years</b> quality management system audit experience in construction-related concrete industry</li> </ul> <p><u>Diploma holders</u>            Minimum <b>5 years</b> full time working experience which includes</p> <ul style="list-style-type: none"> <li>at least <b>2 years</b> full time work experience in construction-related concrete industry in a technical, professional or supervision position OR</li> <li>minimum <b>2 years</b> quality management system audit experience in construction-related concrete industry</li> </ul>
Training on Concrete Technology	Successfully completed relevant training in concrete technology, and training on SS EN 206 and related local Annexes organised by the Building and Construction Authority (BCA) or other organisation providing an equivalent course
Training on Management system and inspection	<ul style="list-style-type: none"> <li>Attended training on ISO 9001</li> <li>Successfully completed a course on Quality Management Systems Auditor / Lead Auditor (ISO 9001)</li> </ul>

Criteria	Inspectors
Inspection Experience	<p><u>Inspectors</u> Minimum of <b>12 inspection days</b> on site in at least four organisations in the building and construction industry, including at least <b>2 RMC plants</b></p> <p><u>Lead Inspectors</u> Minimum of <b>5 inspections</b> on site as team leader with a minimum total duration of <b>15 inspection days</b> on site, including at least <b>3 RMC plants</b></p> <p>(Note: The audit experience of Lead Inspector includes the audit experience of Inspector)</p>
Maintenance of qualification (once every 3 years)	<p><u>Inspectors</u> Perform either</p> <ul style="list-style-type: none"> <li>- a minimum of <b>5 external inspections</b> per year, including at least <b>2 RMC inspections</b>, or</li> <li>- a minimum of <b>4 RMC</b> on-site external inspections or <b>10 RMC</b> inspection days on site per year</li> </ul> <p><u>Lead Inspectors</u> Perform either</p> <ul style="list-style-type: none"> <li>- a minimum of <b>5 external inspections</b> per year, including at least <b>2 RMC inspections</b>, or</li> <li>- a minimum of <b>4 RMC</b> on-site external inspections or <b>10 RMC</b> inspection days on site per year</li> </ul> <p>At least 2 of these inspections shall be in the capacity of a team leader</p> <p>(Note: The audit experience of Lead Inspector includes the audit experience of Inspector)</p>

Notes

- 1) RMC inspections – can be initial, surveillance (include critical processes) or recertification inspections
- 2) RMC inspection days include audit days dealing with ISO 9001 in construction-related concrete industry (e.g. precast, RMC)
- 3) External inspections include audits dealing with ISO 9001 in construction-related concrete industry (e.g. precast, RMC)