FIELD TOOL — RECYCLED AGGREGATES

CONCRETE CONTROL KIT

Go/No-Go Decision

The field method to control a recycled aggregate concrete mix without costly mistakes. Laminated A4 format. Ready for use on site the next day.

7% initial rejection rate → **1%** in 4 weeks

Real project: Grand Paris Express
Tunnel segments L15EST — RA concrete mix
This method is in this kit.

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23 years field experience · 4 forensic concrete RA investigations · 50+ real projects
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THE 3 RULES FOR RA CONCRETE CONTROL

Rule 1

Measure before pouring

Never pour without measuring both the concrete water content AND the slump. One without the other is not enough with recycled aggregates.

Rule 2

Control by water range, not by feel

A water range is a specific numerical interval for your mix design. If you don't have one, you're flying blind.

> **GPE reference — IRIS tunnel segment mix:** water range 5.3 to 5.6%
> Your mix has its own range. If you don't know it → contact me (page 6).

Rule 3

Fix the root cause, not the symptom

A too-workable concrete is not necessarily too wet. It may be hot cement, high WA24 aggregates, or over-dosed admixture.

> **Adding water first = amplifying the problem if the root cause lies elsewhere.**

SHIFT START CHECKLIST

Complete before each production shift. One unresolved STOP = no pouring.

8 CONTROL POINTS — GO · STOP

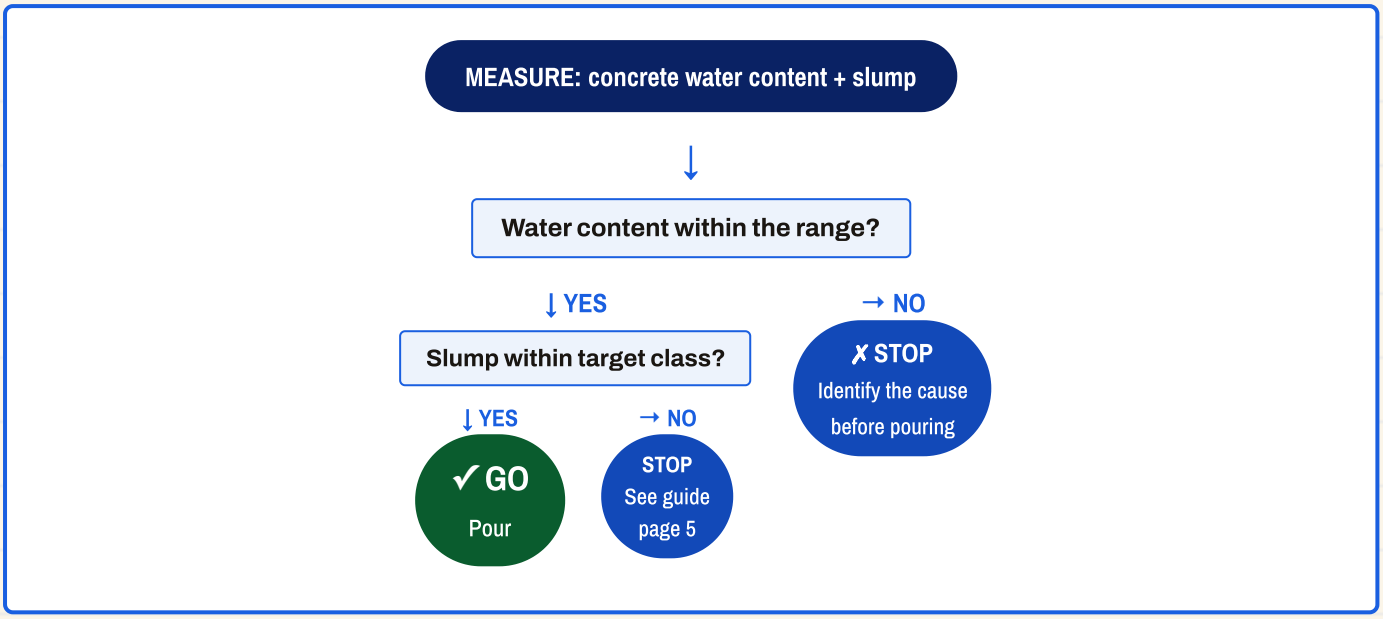
1	Cement: silo in use + delivery date known	GO	STOP
2	Cement temperature: < 60°C (silo rested > 24h if possible)	GO	STOP
3	RA: WA24 of incoming batch known or documented on product sheet	GO	STOP
4	Effective water corrected and calculated for this RA batch	GO	STOP
5	Concrete water content measured on first batch	GO	STOP
6	Water content within target range: [_____] to [_____] %	GO	STOP
7	Slump measured within target consistency class	GO	STOP
8	First pour: no visual anomaly (bleeding, surface ripples, segregation)	GO	STOP

Points 1–2: before the first batch. Points 3–8: on the first production batch.

Field notes — Shift date: [_____] · Site: [_____]

Water range for my mix: [_____] to [_____] % · Mix designer: [_____]

GO/NO-GO DECISION — BEFORE EVERY POUR



Absolute rule: Do not pour until the cause is identified. Pouring outside the water range = risk of reduced final strength + risk of rejection.

TROUBLESHOOTING GUIDE

TOO WORKABLE CONCRETE / SLUMP TOO HIGH

Probable cause	Signal	Action
Hot cement	Silo delivered < 48h, T° > 60°C	Switch to rested silo. Do not add water.
Low WA24 RA this batch	Dry RA = absorbs less water	Recalculate effective water with actual WA24
Over-dosed admixture	Dosage not checked at start	Check dosage sheet, reduce for next batch
Overestimated mix water	Mix design without WA24 correction	Recalculate the effective water correction

TOO STIFF CONCRETE / SLUMP TOO LOW

Probable cause	Signal	Action
High WA24 RA this batch	Saturated RA = absorbs more water	Insufficient pre-wetting — recalculate effective water
Cement with high water demand	New batch or different composition	Compare with previous batch, slightly increase admixture
Poorly pre-wetted RA	Dry RA absorbs mix water post-mixing	Extend pre-wetting duration

BLEEDING / SURFACE RIPPLES

Probable cause	Signal	Action
Excess free water	High water content + visible bleeding	Return to water range, check WA24
Insufficient mixing	Visible heterogeneity in batch	Increase mixing time
Incompatible admixture	Appears after admixture change	Comparative trial with previous admixture

FLASH SET — CONCRETE STIFFENING TOO FAST *NEW*

Probable cause	Signal	Action
Hot cement + high ambient temp.	Placing time too short	Cold mix water, delay cement delivery, increase retarder
Thermal shock RA/cement	Cold RA + hot cement	Balance constituent temperatures before mixing

SEGREGATION / RA POCKETS AFTER STRIPPING *NEW*

Probable cause	Signal	Action
Excess workability	Slump too high + RA concentrated at bottom	Reduce water, review vibration
Over-vibration	Laitance on surface + RA at bottom	Reduce vibration time, decrease pass spacing
Incompatible RA max size	D max close to minimum element thickness	Check D max vs minimum thickness

CONTACTS & RESOURCES

Issue not in the guide?

1h30 diagnostic session with Ali Maolida.
Root cause identification + action plan + written report within 24h.

€500 excl. VAT / session

Master recycled aggregates?

Online training "Mastering Recycled Aggregates"
9 chapters · Lifetime access

Site supervisors · Ready-mix · Structural engineers · Project owners

betonmalin.fr
Training + resources

Supplier Qualification
betonmalin.fr/qualification

Normative updates included

This kit is updated with each revision of NF EN 206+A2/CN or NF P 18-545. Buyers receive updates automatically by email.

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