



# WorleyParsons

resources & energy

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4 November 2011

Ref: CRS -0050-Ref

## **COMBINED RESIDUE SOLIDS PROJECT**

To Whom It May Concern

### **PLASTIC REO BLOCKS**

During construction the plastic reo blocks were used on the Combined Residue Solids project at Worsley Alumina, Western Australia.

They delivered excellent performance and complete concrete adhesion and penetration was achieved. During testing there was no evidence of voids or lack of aggregate penetration.

I would recommend the use of plastic reo blocks as an alternative to other products on the market.

Yours faithfully

Matt Nutsford  
Project Manager  
Combined Residue Solids

BHP  
WORSLEY  
REFINERY  
COLLIE  
W.A.



**Western power substation Kewdale**



















28 mm

8









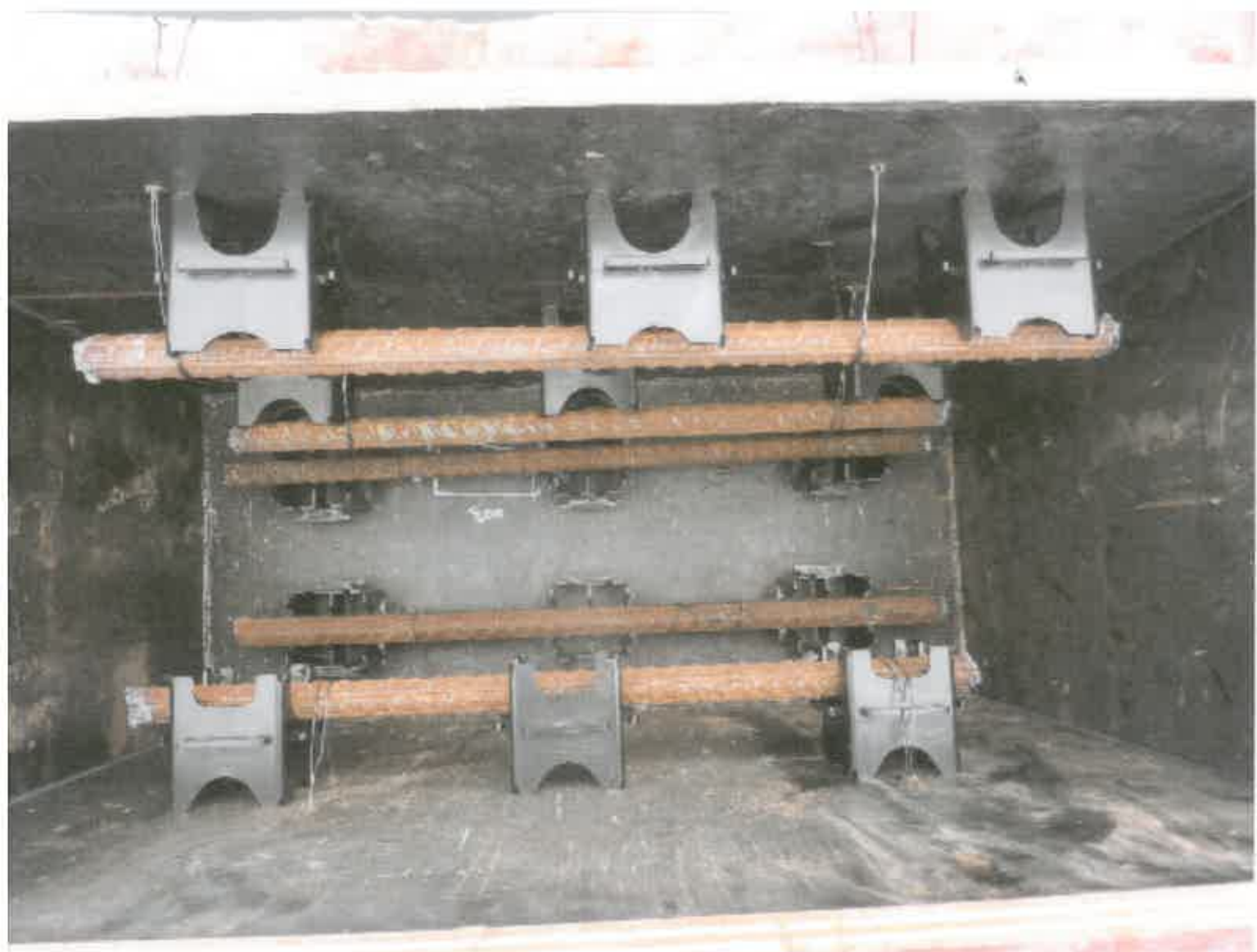


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From: Michael Ellis [M.J.Ellis@curtin.edu.au]  
 To: Lester Michel  
 Subject: RE: rebar chairs  
 Sent: Sat 8/05/2010 10:35 AM

**Table 'B' Rebar Chairs - Plastic**

Type (depth)	Specimen Name	Breadth(mm)	Depth(mm)	Length(mm)	Ultimate Load (kN)	'Average' Load (kN)	Weight (g)
50	1	76.10	86.30	76.00	14.006		97.67
	2	75.90	86.30	76.00	11.329	13.327	95.93
	*9	75.90	86.20	75.90	14.645		99.09
65	3	75.90	86.30	75.90	12.851		96.25
	4	75.90	86.20	75.90	12.010	13.419	95.73
	*10	76.00	86.30	76.00	15.396		99.20
75	5	75.90	86.30	76.00	12.306		96.45
	6	76.00	86.30	75.90	13.046	13.399	97.90
	*11	75.80	86.30	75.90	14.846		99.17

\* No.11 - explosive/catastrophic failure!

**Table 'C' Rebar Chairs - Plastic (with bottom keeper plates attached)**

Type (depth)	Specimen Name	Breadth(mm)	Depth(mm)	Length(mm)	Ultimate Load (kN)	'Average' Load (kN)	Weight (g)
50	*13	75.80	88.50	75.80	13.904	13.471	122.50
	*14	75.80	88.80	75.70	15.571	13.957	122.95
75	*15	75.80	88.70	75.80	14.227	13.606	122.89

\* No.13 - explosive/catastrophic failure!

\* No.14 - explosive/catastrophic failure!

\* No.15 - explosive/catastrophic failure!

\* 'Average' Load (kN) = Table 'B' + Table 'C' Ultimate Load Results



**Table 'D'** **Oven - 55 deg C**

Specimen Name	Breadth(mm) (original)	Depth(mm) (original)	Length(mm) (original)	Breadth(mm) (after 2hrs)	Depth(mm) (after 2hrs)	Length(mm) (after 2hrs)	Breadth(mm) (after 48hrs)	Depth(mm) (after 48hrs)	Length(mm) (after 48hrs)	Weight (g)
7	75.90	86.20	76.00	76.10	86.30	76.10	76.10	86.40	76.00	95.67
8	76.00	86.30	76.00	76.10	86.40	76.10	76.10	86.40	76.20	96.48
*12	75.90	86.20	75.80	76.10	86.40	76.10	76.00	86.30	76.00	98.96

**Table 'E'** **Oven - 105 deg C**

Specimen Name	Breadth(mm) (after 55 deg)	Depth(mm) (after 55 deg)	Length(mm) (after 55 deg)	Breadth(mm) (after 2hrs)	Depth(mm) (after 2hrs)	Length(mm) (after 2hrs)	Breadth(mm) (after 24hrs)	Depth(mm) (after 24hrs)	Length(mm) (after 24hrs)	Weight (g)
7	75.90	86.10	75.90	74.00	85.10	73.60	72.60	84.70	72.90	95.67
8	76.00	86.20	75.90	74.10	85.40	74.10	72.20	84.60	73.20	96.48
*12	76.00	86.30	76.00	76.20	86.70	76.20	76.20	86.50	76.20	98.96

\* denotes '2nd series' of tests

^ denotes '3rd series' of tests

20<sup>th</sup> April 2011

**Our Reference: C260 /BJ /CM /QA59**

Global Reo Accessories  
27 Dellamarta Road  
WANGARA WA 6065

To Whom It May Concern

## PLASTIC REO BLOCKS

These reo blocks were tried and tested on the Wellington Dam Remedial Works Project in Western Australia.

The performance they delivered was excellent. Complete concrete adhesion and penetration was achieved, and tests that were carried out have proved that when they were cut up and core drilled there was no evidence of voids or lack of aggregate in the test results.

I can confirm as the Alliance manager that I have seen the results myself.

Yours sincerely

Wellington Dam Alliance



**Ben Johnson**  
**Alliance Manager**











## MATERIAL SAFETY DATA SHEET

DATE ISSUED: 04/11/03

DATE REVISED: 09/07/01

REV. No.: 003

### 1. COMPANY IDENTIFICATION

COMPANY NAME: TAITA Chemical Co., LTD.

COMPANY ADDRESS: No.5, Industrial 1<sup>st</sup> Rd., Lin-Yuan, Kaohsiung, Taiwan

TELEPHONE: 886-76413201 EXT 328

FACSIMILE: 886-76413201 EXT 328

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

PRODUCT DESCRIPTION : Acrylonitrile-Butadiene-Styrene copolymer

PRODUCT IDENTIFIER : TAITALAC ABS

PRODUCT NAME : 1000、1000T、1003、1250、3000、3000D、3100、3100M、3000H、3000P、  
5000、5000S、5002、5003、7000、6000、6000F、6000P、6000R、6003

Content : > 98 % (Additives ≤ 2 %)

Formula :  $(C_3H_3N)_x - (C_4H_6)_y - (C_8H_8)_z$

CAS No. : 9003-56-9

### 3. HAZARDS IDENTIFICATION

Most Important Hazards : None

Adverse Human Health Effects : None

Environmental Effects : None

Physical and Chemical Hazards : None

### 4. FIRST AID MEASURES

Eye Contact : In case of pellets or powder, flush with plenty of water for at least 15 minutes.  
Seek medical advice if any dust particles still remain. In case of gases evolving from melted resin of high temperature, flush with plenty of water for at least 15 minutes. Seek medical advice if necessary.

Skin Contact : Wash skin thoroughly with soap and water. Seek medical attention if rash or burn occurs.

Ingestion : Induce vomiting. Rinse mouth with water. Seek medical advice if necessary..

Inhalation : In case of gases evolving from melted resin, move subject to fresh air. Treat symptomatically.



## 5. FIRE FIGHTING MEASURES

**Extinguishing Measures :** At the time of fire, high heat as well as gases containing dense black smoke, carbon dioxide, carbon monoxide, nitrogen oxides, etc. are generated. At the time of fire-fighting, wear proper protective clothing and respirators.

**Extinguishing Media :** Water, water spray, and various kinds of fire-extinguishers may be used.

**Special Fire-Fighting Procedure :** Self contained breathing apparatus.

**Fire and Explosion Hazards :** None

## 6. ACCIDENTAL RELEASE MEASURES

**Environmental Precautions :** In case it is spilled on the road or floor, there is danger of slipping and falling. Thus, collect the spilled pellets and dispose of them. If it is accidentally released, it may cause environmental contamination, so immediately collect all that have been released.

**Methods for Cleaning up :** Recovery if not contaminated or Disposal

## 7. HANDLING AND STORAGE

**Handling :** Gases and fumes in the drying and molding process may cause irritation to the skin and respiratory tract. Prevent contact with skin and eyes. Use industrial hygiene practices. Provide adequate ventilation. Secondary operation such as grinding, sanding or sawing may produce a dust explosion hazard. Use aggressive housekeeping activities to prevent dust accumulation; employ bonding, grounding, venting and explosion relief provisions in accordance with accepted engineering practices.

**Storage :** Store in a dry place away from moisture, excessive heat and sources of ignition. Avoid direct sunlight. To avoid risk of collapse, do not stack unsupported boxes too high.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Threshold Limit Value :** Not determined

**Ventilation :** Necessary to exclude dust, fumes and gases.

### PERSONAL PROTECTION :

**Eye :** Wear safety glasses for general purpose. Wear chemical goggles for cleaning molding machines.



## TAITALAC

### ABS Resin

**Skin :** When handling pellets avoid prolonged or repeated contact with skin · there is no special need of gloves, But when handling molten resins, wear gloves having good Thermal insulation. Ordinary work clothing will do · but in case of handling molten resins, wear work clothing having long sleeves.

**Respiratory :** Wear masks for cleaning molding machines.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Apperance	: Milky off-white Solids
Melting Point	: Softening above 100 °C
Vapor Pressure (mmHg)	: None
Specific Gravity	: 1.03 – 1.08
Solubility	: Insoluble in water
Volatility	: None

## 10. STABILITY AND REACTIVITY

Flashing Point	: 400°C
Auto Ignition Point	: 466°C.
Upper Explosion Limit	: None
Lower Explosion Limit	: None
Stability	: Stable under recommended conditions of storage and handling
Reactivity with Water	: No
Flammability	: Yes
Dust Explosiveness	: Explosive
Thermal Decomposition Gases	: CO, HCN, AN, SM and NO

## 11. TOXICOLOGICAL INFORMATION

**Irritation :** Fumes or vapors generated from decomposing resin may be irritant to eyes.

**Acute Toxicity (Includes 50% Lethal Dose) :** Oral LD <sub>50</sub> (Rat) > 5g/kg (Assumed Value)

**Sub-Acute Toxicity :** No Information

**Mutagenicity :** Not determined.

## 12. ECOLOGICAL INFORMATION

To avoid being taken by ocean species or birds, disposal of the waste to the ocean and water sources is inhibited.



**Taita Chemical Company, Limited**



No.5, Industrial 1<sup>st</sup> Rd., Lin-Yuan, Kaohsiung, Taiwan  
TEL : 886-7-641-3201  
FAX : 886-7-641-4544

MSDS-ABS  
Ver. : 3.0

**TAITALAC**  
ABS Resin

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**13. DISPOSAL INFORMATION**

It shall be handled in accordance with the laws, rules, and ordinances related to the disposal of waste matters.

**14. TRANSPORTATION INFORMATION :**

Not classified.

**15. REGULATORY INFORMATION :**

Not available.

**16. OTHER INFORMATION :**

None.



Large base plate attachment



Securely attaches to large base plate for extra stability on softer ground.

The **REO-BLOCK** is manufactured from recycled high impact plastic and will not degrade or deteriorate within the concrete structure.

Proudly developed and manufactured in Australia

PATENT APPLICATION NUMBER  
20009905278



**STOCK IS NOW AVAILABLE FROM  
YOUR ACCESSORY SUPPLIER**



Wholesale enquiries to:

**Global Reo Accessories**

27 Dellamarta Road

Wangara Western Australia 6065

PO Box 1215 Wangara WA 6947

Tel: +61 8 9309 5100

Fax: +61 8 9309 5606

Email: [gra@ozemail.com.au](mailto:gra@ozemail.com.au)



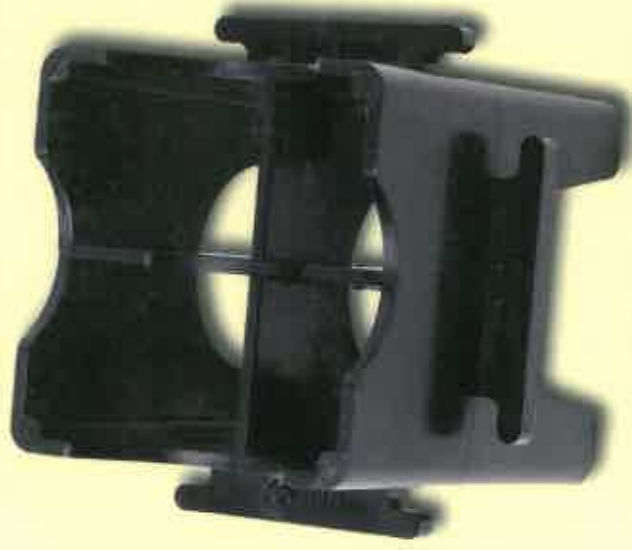
Global Reo Accessories are pleased to introduce the new **Reo-Block** reinforcing bar support.



This 80mm, **HIGH IMPACT** plastic block is ideal to replace the concrete blocks currently used for reo bar support.

The **REO-BLOCK** has many advantages over the existing method as shown below:

- Environmentally friendly, manufactured from recycled material.
- Can accommodate Bar sizes from 10mm to 40mm.
- Recessed to ensure Bar cannot roll off.
- Multiple height variations 50mm, 65mm and 75mm in one product, saving stock duplication.
- About one sixth the weight of concrete.
- Better for manual handling & transport. Bags of 50 pieces weigh only 5.0 kgs.
- Able to be wire tied to reo without wire contact to ground (no rust problems).
- Engineered for good adhesive and sealant within concrete.
- Will accommodate small and large aggregate concrete mixes.
- Complete concrete acceptance, even when blinding is rough.
- Still efficient when blinding is low.
- Will not slide out when being blown out with compressed air during cleaning process.
- Can be securely attached to small or large plate.
- Tested at Edith Cowan University WA to withstand weight in excess of one tonne (SWL 1.00 tonne recommended).
- Can be fitted vertically or horizontally.



For use on blinding without base plate.



Small base plate attachment for use on compacted ground.



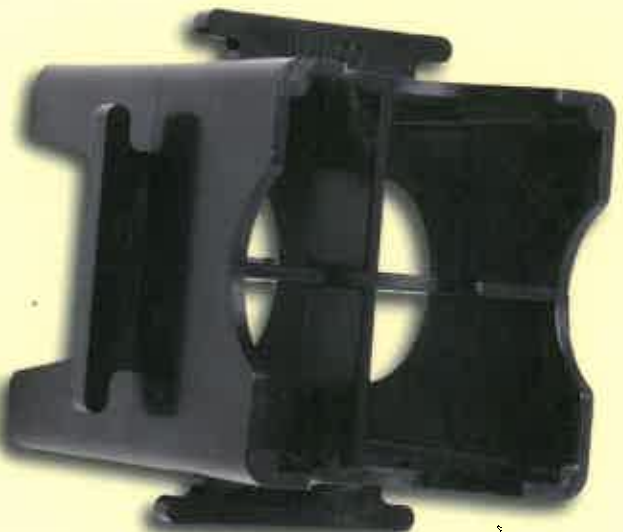
Easy to cut with a handsaw to fit adjacent or other bar sizes.



Securely attaches to small base plate, for stability on compacted ground.

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Small base plate attachment for use on compacted ground.



Securely attaches to small base plate, for stability on compacted ground.





Large base plate attachment



Securely attaches to large base plate for extra stability on softer ground.

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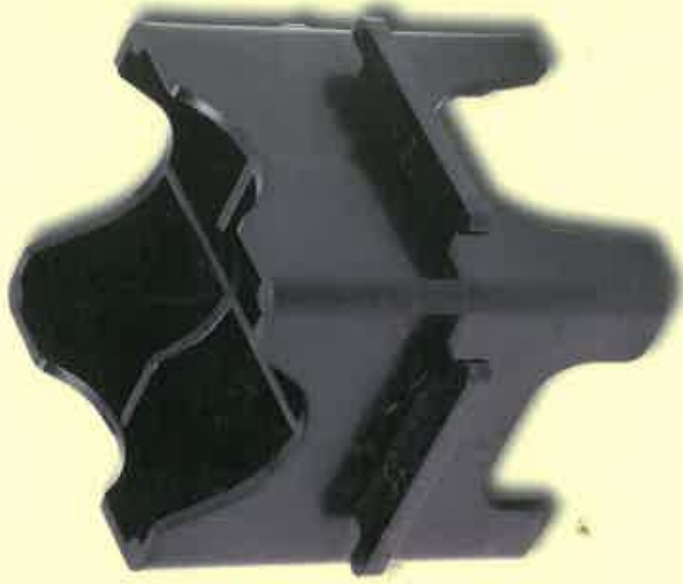
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