

Safe Work Instruction	Issue date: 28/04/09
Deval Machine Testing	Review date: 27/04/12

Document no.	Work description		
SMS-06-SW-1349	Using Deval machine to conduct resistance to wear by attrition test		
Scope	This instruction outlines the hazards and controls in the operation of Deval Machine to test samples in resistance to wear by attrition in Shed A with prior preparation in Geotechnical Laboratory.		
Review date	References 27/04/12 AS 1141.27-1999 Methods for sampling and testing aggregates – Method 27 Resistance to wear by attrition. NSW OHS Regulation 2001, Part 5.4 Working with Plant AS 4024.1 Safeguarding of Machinery SMS-06-GD-0225 Plant SMS-16-SR-0057 Inspection and Testing		
Responsible supervisor	PPE and precautions	Competencies or qualifications	Licences or permits required
Robert Coventry Geotechnical Technician	Safety Boots Oven Gloves Hearing protection 85 dbA Safety glasses P2 Dust Mask Operate according to the manufacturer's instruction	Engineering Certificate on soil / aggregate testing Trained in the use of Deval Machine Competent in the use of this SWI	nil
Tools and equipment required			
Deval Machine	Sieves		
Balance	Oven		
Test Cylinders	Socket spanner		
Transport trolley			
IF CONTROL MEASURES ARE NOT SUITABLE AND MAJOR CHANGES ARE NEEDED, CONDUCT A RISK ASSESSMENT AND DEVELOP NEW CONTROLS ACCORDING TO SMS-06-PR-0104 WORKPLACE RISK MANAGEMENT .			



Warning

Operator must use correct manual handling technique to place samples into machine

Site / job planning	Ensure immediate environment is safe for work e.g. adequate lighting, no loose materials, no chemical spills. Ensure good housekeeping.		
Pre-operational checks	Ensure Deval machine or Shed A have installed safety circuits Ensure Deval machine is maintained, serviced and cleaned according to manufacturer's manual Ensure Deval machine has been inspected and tested according to inspection and testing requirement		
Preparation of test cylinders in Laboratory	Place steel test cylinder onto balance and tare	Hazards: Manual handling	Control: ensure operator is trained in manual handling techniques, and use correct tools and posture Use other personnel to "share the load"
	Insert a mass of clean water equivalent to the mass of the test portion into test cylinder	Low risk	
	Remove test cylinder from balance	Manual handling	Ensure operator is trained in manual handling techniques, and use correct tools and posture Use other personnel to "share the load"

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Preparation of test ctd.	Place plastic washer and steel lid onto test cylinder and lock down with nuts via socket spanner	Repetitive strain to hands and wrist	Instruction to operator not to over-tighten nuts and use correct tools
	Repeat with other test cylinders for test	As above	As above
	Use hand trolley to transport prepared test cylinders from Laboratory to Shed A Deval Machine	Manual handling in mobilising cylinders and trolley	Ensure operator is trained in manual handling techniques, and use correct tools and posture Use other personnel to "share the load"

Using Deval machine	Ensure cable of Deval Machine is tagged for maintenance, serviced and safe to operate	Hazards: Contact with electricity Not tagged	Control: Stop work and organise maintenance and service
	Place test cylinders into Deval machine and seat in revolving frame	Manual handling in lifting cylinder	Ensure operator is trained in manual handling techniques, and use correct tools and posture Use other personnel to "share the load"
	Lock down test cylinder	Repetitive strain to hands and wrist	Instruction to operator not to over-tighten nuts and use correct tools
	Based on revolution counter, once set up number is achieved, machine turns off automatically	Set up wrongly or read wrongly	Check with others before switch on Read with enough lights
	Close lid and Let Deval machine run	Industrial noise below 85 dBa from Deval Machine Dust inhalation Foreign body to eyes	Wear ear muff during revolution Dust mask Safety glasses
	Removal of test cylinder from revolving frame to trolley, remove power cable from power point	Contact with electricity	Ensure Deval machine has been inspected and tested according to requirement Ensure Safety Switch is installed

Test cylinders in Laboratory	Wheel test cylinders	Manual handling in lifting cylinder	Ensure operator is trained in manual handling techniques, and use correct tools and posture Use other personnel to "share the load"
	For post attrition test, remove all materials from cylinders	Dust inhalation Foreign body to eyes	Dust mask Safety glasses
	Thoroughly wash the portion retained	Allergy to dust and dirt And As above	Oven gloves with cotton linings As above
	Place the retained portion into oven	As above	As above
	Perform calculation and report results	Low risk	
	Repeat test for duplicate test cylinder	As above	As above

Additional controls