MULTICRETE SYSTEMS INC.

Thompson, MB	Flin Flon, MB	Saskatoon, SK	Red Lake, ON
T 204-677-5977	*T 204-687-6533*	*T 306-651-2727*	*T 807-735-3011*
F 204-677-5981	*F 204-687-6542*	*F 306-651-2728*	*F 807-735-3012*

Environmental Act Proposal (EAP)

Concrete Products Batch Plant - Thompson

February 25, 2014

Appendix C

2013 Property Tax Bill & Business Tax Bill

2013 PROPERTY TAX BILL

CITY OF THOMPSON
226 MYSTERY LAKE RD THOMPSON MB R8N 1S6
Phone : (204) 677 - 7910 **Fax :** (204) 677 - 7936
Website : www.thompson.ca **E-mail :** taxes@thompson.ca

RECEIVED
AUG 01 2013

MUNICIPALITY # 560
ROLL NUMBER 0313550.000

4573464 MANITOBA LTD R
9 - 106 DE VOS RD
THOMPSON MB R3T 5Y1

REAL PROPERTY INFORMATION

Lot/Section	Blk/Twp	Plan/Range	Frontage/Area	Dwelling Units
3	1	928	110.00 F	

Civic Address : 55 WEIR ROAD

ASSESSMENT

Title or Deed	Tax Status	Assessment			Class	Portion %	Portioned Assessment
		Land	Building	Total			
2456596	Taxable	70,700	257,300	328,000	Other Property	65.00	213,210

MUNICIPAL TAXES

	Assessment	Mill Rate	Taxes Owing
GENERAL MUNICIPAL			
GENERAL MUNICIPAL AT LARGE	213,210	19.630	4,185.31

By-Law **End Year** **Levy**

(Appendix C)

NET MUNICIPAL TAXES → **4,185.31**

SCHOOL TAXES

SCHOOL DIVISION
Inquiries : (204) 677 - 6150

Mystery Lake	213,210	18.528	3,950.35

NET SCHOOL DIVISION LEVY 3,950.35

PROVINCIAL EDUCATION SUPPORT LEVY
Inquiries : (204) 945 - 6910

Other	213,210	11.830	2,522.27

PROVINCIAL EDUCATION SUPPORT LEVY 2,522.27

NET SCHOOL TAXES → **6,472.62**

CURRENT TAXES **10,657.93**

BALANCE OWING → **10,657.93**

Important Messages:

DUE DATE : Sep 30, 2013

Manitoba Education/Property Tax Credit Advance: Residence must be owner occupied as of January 1. For additional information telephone: Toll Free 1-800-782-0771, Winnipeg 204-948-2115.
Manitoba Farmland School Tax Rebate : Applications and more information is available at your local MASC and MAFRI offices and www.masc.mb.ca. For additional information email: fstr@masc.mb.ca or telephone 204-726-7068.

2013 PROPERTY TAX BILL

CITY OF THOMPSON
226 MYSTERY LAKE RD THOMPSON MB R8N 1S6
Phone : (204) 677 - 7910 **Fax :** (204) 677 - 7936
Website : www.thompson.ca **E-mail :** taxes@thompson.ca

MUNICIPALITY # 560
ROLL NUMBER 0313450.000

4573464 MANITOBA LTD R
PO BOX 860
THOMPSON MB R8N 1N6

REAL PROPERTY INFORMATION

Lot/Section	Blk/Twp	Plan/Range	Frontage/Area	Dwelling Units
1	1	928	110.74 F	

Civic Address : 47 WEIR ROAD

ASSESSMENT

Title or Deed	Tax Status	Assessment			Class	Portion %	Portioned Assessment
		Land	Building	Total			
1906760	Taxable	71,200	303,000	374,200	Other Property	65.00	243,230

MUNICIPAL TAXES

			Assessment	Mill Rate	Taxes Owing
GENERAL MUNICIPAL					
GENERAL MUNICIPAL AT LARGE			243,230	19.630	4,774.60
By-Law	**End Year**	**Levy**			
NET MUNICIPAL TAXES →					**4,774.60**

SCHOOL TAXES

SCHOOL DIVISION					
Inquiries : (204) 677 - 6150					
Mystery Lake			243,230	18.528	4,506.57
NET SCHOOL DIVISION LEVY					4,506.57
PROVINCIAL EDUCATION SUPPORT LEVY					
Inquiries : (204) 945 - 6910					
Other			243,230	11.830	2,877.41
PROVINCIAL EDUCATION SUPPORT LEVY					2,877.41
NET SCHOOL TAXES →					**7,383.98**

CURRENT TAXES	**12,158.58**
BALANCE OWING →	**12,158.58**

Important Messages:

DUE DATE : Sep 30, 2013

Manitoba Education/Property Tax Credit Advance: Residence must be owner occupied as of January 1. For additional information telephone: Toll Free 1-800-782-0771, Winnipeg 204-948-2115.
Manitoba Farmland School Tax Rebate : Applications and more information is available at your local MASC and MAFRI offices and www.masc.mb.ca. For additional information email: fstr@masc.mb.ca or telephone 204-726-7068.

2013 PROPERTY TAX BILL

CITY OF THOMPSON
226 MYSTERY LAKE RD THOMPSON MB R8N 1S6
Phone : (204) 677 - 7910 **Fax :** (204) 677 - 7936
Website : www.thompson.ca **E-mail :** taxes@thompson.ca

MUNICIPALITY # 560
ROLL NUMBER 0315200.000

4573464 MANITOBA LTD R
PO BOX 860
THOMPSON MB R8N 1N6

REAL PROPERTY INFORMATION

Lot/Section	Blk/Twp	Plan/Range	Frontage/Area	Dwelling Units
DES 19	1	928	190.00 F	

Civic Address : 47 KNIFE CRES

ASSESSMENT

Title or Deed	Tax Status	Assessment			Class	Portion %	Portioned Assessment
		Land	Building	Total			
1906763	Taxable	120,600		120,600	Other Property	65.00	78,390

MUNICIPAL TAXES

GENERAL MUNICIPAL
GENERAL MUNICIPAL AT LARGE

	Assessment	Mill Rate	Taxes Owing
	78,390	19.630	1,538.80

By-Law **End Year** **Levy**

NET MUNICIPAL TAXES → **1,538.80**

SCHOOL TAXES

SCHOOL DIVISION
Inquiries : (204) 677 - 6150

Mystery Lake	78,390	18.528	1,452.41

NET SCHOOL DIVISION LEVY 1,452.41

PROVINCIAL EDUCATION SUPPORT LEVY
Inquiries : (204) 945 - 6910

Other	78,390	11.830	927.35

PROVINCIAL EDUCATION SUPPORT LEVY 927.35

NET SCHOOL TAXES → **2,379.76**

CURRENT TAXES **3,918.56**

BALANCE OWING → **3,918.56**

DUE DATE : Sep 30, 2013

Important Messages:

Manitoba Education/Property Tax Credit Advance: Residence must be owner occupied as of January 1. For additional information telephone: Toll Free 1-800-782-0771, Winnipeg 204-948-2115.
Manitoba Farmland School Tax Rebate : Applications and more information is available at your local MASC and MAFRI offices and www.masc.mb.ca. For additional information email: fstr@masc.mb.ca or telephone 204-726-7068.

2013 BUSINESS TAX BILL

MUNICIPALITY # 560
ROLL NUMBER 0313450.010

CITY OF THOMPSON
226 MYSTERY LAKE RD THOMPSON MB R8N 1S6
Phone : (204) 677 - 7910
Fax : (204) 677 - 7936
Website : www.thompson.ca **E-mail :** taxes@thompson.ca

MULTICRETE SYSTEMS LTD.
PO BOX 860
THOMPSON MB R8N 1X6

RECEIVED
AUG 07 2013

PROPERTY DESCRIPTION		
Lot/Section	**Blk/Twp**	**Plan/Range**
DES 1	1	928
Civic Address : 47 WEIR RD		

BUSINESS TAXES	**Assessment**	**Rate**	**Taxes Owing**
	31,800	4.49	1,427.82

CURRENT TAXES →	1,427.82
BALANCE OWING →	**1,427.82**

DUE DATE : Sep 30, 2013

Important Messages:

Appendix D

Land Titles

&

Surveyor's Staking Certificate

DATE: 2014/02/25 TITLE SEARCH MUNP101
TSTL (1 OF 9) TITLE DISPLAY - PORTAGE LA PRAIRIE PAGE: 01

TITLE NUMBER..... 1906760/3 TITLE STATUS..... ACCEPTED
REGISTRATION DATE.. 2002/10/17 ASSESSMENT OFFICE.. ** MANITOBA **
COMPLETION DATE.... 2002/10/17 CONSOLIDATION..... NO

LEGAL DESCRIPTION:

4573464 MANITOBA LTD.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

AT THOMPSON AND BEING
LOT 1 BLOCK 1 PLAN 928 PLTO (N DIV)
IN 78-3 WPM
EXC ALL MINES MINERALS AND OTHER RESERVATIONS
AS CONTAINED IN THE CROWN LANDS ACT

TX: ____
DA: _____

TITLE NUMBER..... 2456596/3 TITLE STATUS..... ACCEPTED
REGISTRATION DATE.. 2010/06/11 ASSESSMENT OFFICE.. ** MANITOBA **
COMPLETION DATE.... 2010/06/14 CONSOLIDATION..... NO

LEGAL DESCRIPTION:

4573464 MANITOBA LTD.

IS REGISTERED OWNER, SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

AT THOMPSON AND BEING
LOT 3 BLOCK 1 PLAN 928 PLTO (N DIV)
EXC ALL MINES, MINERALS AND OTHER MATTERS
AS SET FORTH IN THE CROWN LANDS ACT
IN 78-3 WPM

TX: ____
DA: _____

TITLE NUMBER..... 1906763/3 TITLE STATUS..... ACCEPTED
REGISTRATION DATE.. 2002/10/17 ASSESSMENT OFFICE.. ** MANITOBA **
COMPLETION DATE.... 2002/10/17 CONSOLIDATION..... NO

LEGAL DESCRIPTION:

4573464 MANITOBA LTD.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

AT THOMPSON AND BEING
LOT 19 BLOCK 1 PLAN 928 PLTO (N DIV)
IN 78-3 WPM
EXC ALL MINES MINERALS AND OTHER RESERVATIONS
AS CONTAINED IN THE CROWN LANDS ACT

TX: ____
DA: _____

Prepared For:
Multicrete Systems Inc.

Re:
Surveyor's Staking Certificate
Weir Road / Knife Crescent
Thompson, Manitoba

Registered Owners: 4573464 Manitoba Ltd. and The City of Thompson

Certificate of Title: 1906760, 1906763 and 1891245 Portage la Prairie Land Titles Office

Legal Description: At Thompson and being
Lots 1, 19 and 3, Block 1, Plan 928 PLTO (N Div) in 78-3 WPM
Exc all mines, minerals and other reservations
as contained in The Crown Lands Act

Encumbrances: Mortgages 1110196 and 1124403 to and Personal Property Security Notice 1110197 by Roynat Inc. are registered against C.T.'s 1906760 and 1906763; in addition, Caveat 95-7552 by the City of Thompson is registered against C.T. 1906763. There are no encumbrances registered against C.T. 1891245.
Encumbrances noted herein are provided for information purposes only and have not been investigated as to their intent or extent.

As requested, this is to certify that we have staked or referenced the boundaries of the above described land.

There are no encroachments above ground level onto the above described land by buildings from adjoining properties.

Title search was made on the 24th day of November, 2009.
Sketch showing survey is attached and forms part of this certificate.
This survey was made on the 12th day of November, 2009.

CERTIFIED A TRUE COPY
DATED November 27/09
M.L.S.

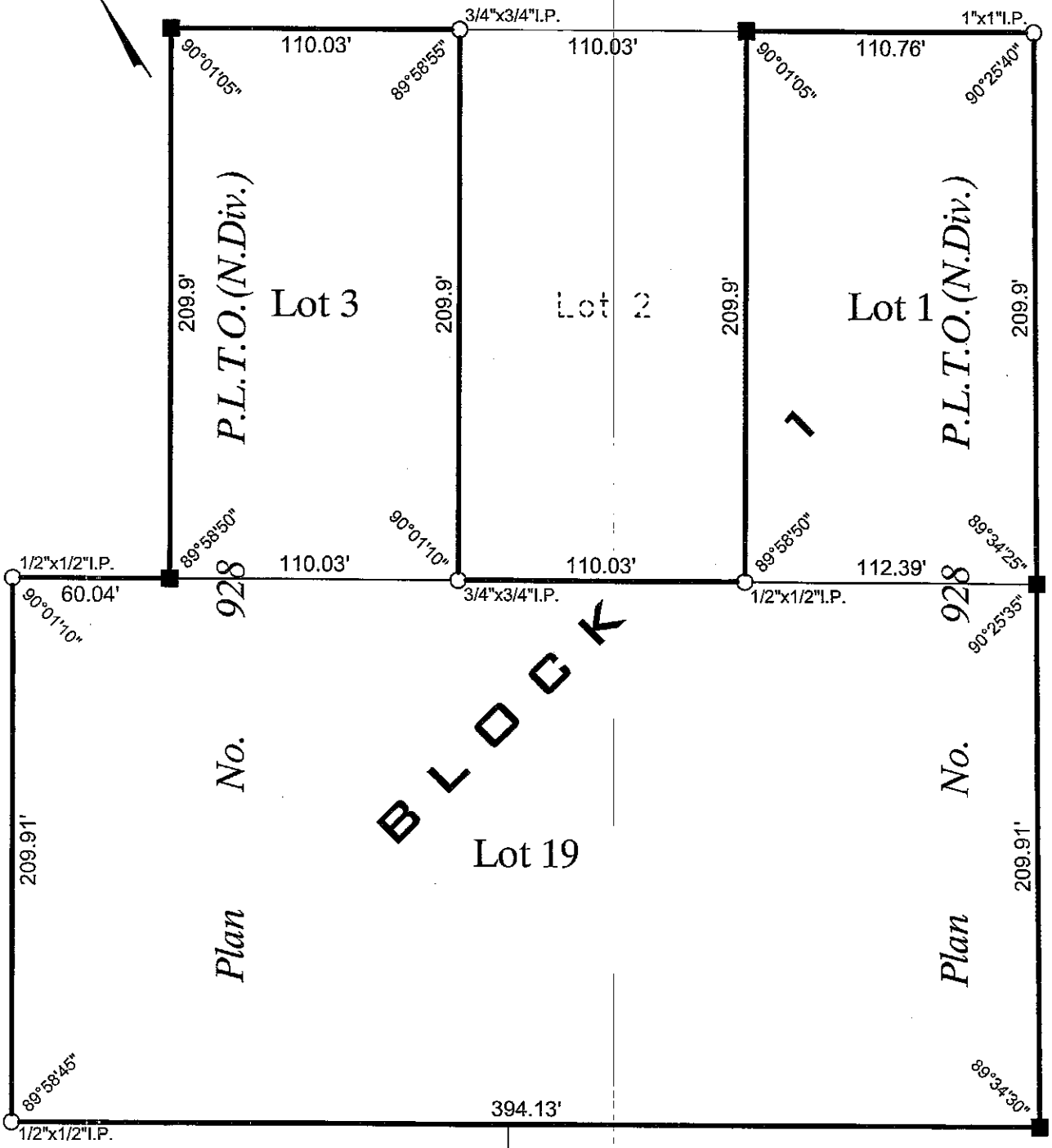
Signed, Sealed and Dated
at Dauphin, Manitoba,
this 27th day of November, 2009.

John S. Kulchycki
Manitoba Land Surveyor

Our File No. 09 332

SURVEY SKETCH

WEIR ROAD



KNIFE CRESCENT

Note:
All measurements are in feet or decimals thereof.
Survey monuments found are described and shown thus .....
Iron posts 3/4"x3/4"x30" marked M.L.S. and BK are placed shown thus . .
This survey was made on the 12th day of November, 2009.

CERTIFIED A TRUE COPY
DATED November 27/09
M.L.S.

Signed, Sealed and Dated
at Dauphin, Manitoba,
this 27th day of November, 2009

John S. Kulchycki
Manitoba Land Surveyor

SCALE: 1 Inch = 60 Feet

Our File No. 09 332

ORIGINATING INSTRUMENT(S):

REGISTRATION NUMBER	TYPE	REG. DATE	CONSIDERATION	SWORN VALUE
1059068 PLP	T	2002/10/17	$1.00	$313,041.00

PRESENTED BY: FILLMORE RILEY
FROM: TERRACRETE SYSTEMS LTD.
TO: 4573464 MANITOBA LTD.

FROM TITLE NUMBER(S):

1491599 PLP ALL

LAND INDEX:

LOT	BLOCK	SURVEY PLAN
1	1	928

NOTE: N DIV 78-3W EX RES

ACCEPTED THIS 17TH DAY OF OCTOBER, 2002 BY G.PLUNKETT FOR THE DISTRICT REGISTRAR OF THE LAND TITLES DISTRICT OF PORTAGE.

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM ON 2009/11/24 OF TITLE NUMBER 1906760.

********** END OF STATUS OF TITLE 1906760 PLP **********

ADDRESS(ES) FOR SERVICE:

EFFECT	NAME AND ADDRESS	POSTAL CODE
ACTIVE	4573464 MANITOBA LTD. 2643 PORTAGE AVENUE WINNIPEG MB	R3J 0P9

ORIGINATING INSTRUMENT(S):

REGISTRATION NUMBER	TYPE	REG. DATE	CONSIDERATION	SWORN VALUE
1059069 PLP	T	2002/10/17	$1.00	$45,000.00

PRESENTED BY: FILLMORE RILEY
FROM: TERRACRETE SYSTEMS LTD.
TO: 4573464 MANITOBA LTD.

FROM TITLE NUMBER(S):

1487497 PLP ALL

LAND INDEX:

LOT	BLOCK	SURVEY PLAN
19	1	928

NOTE: N DIV 78-3W EX RES

**ACCEPTED THIS 17TH DAY OF OCTOBER, 2002
BY G.PLUNKETT FOR THE DISTRICT REGISTRAR OF
THE LAND TITLES DISTRICT OF PORTAGE.**

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM ON 2009/11/24 OF TITLE NUMBER 1906763.

********** END OF STATUS OF TITLE 1906763 PLP **********

LEGAL DESCRIPTION:

THE CITY OF THOMPSON

IS REGISTERED OWNER, SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

AT THOMPSON AND BEING
LOT 3 BLOCK 1 PLAN 928 PLTO (N DIV)
IN 78-3 WPM
EXC ALL MINES, MINERALS AND OTHER RESERVATIONS
AS CONTAINED IN THE CROWN LANDS ACT

ACTIVE TITLE CHARGE(S):

NO ACTIVE TITLE CHARGES EXIST ON THIS TITLE

ADDRESS(ES) FOR SERVICE:

EFFECT	NAME AND ADDRESS	POSTAL CODE
ACTIVE	THE CITY OF THOMPSON CITY HALL 226 MYSTERY LAKE ROAD THOMPSON MB	R8N 1S6

ORIGINATING INSTRUMENT(S):

REGISTRATION NUMBER	TYPE	REG. DATE	CONSIDERATION	SWORN VALUE
1057204 PLP	ITREQ	2002/08/07	$0.00	$0.00

PRESENTED BY: PLTO
FROM: PLTO CONVERSION
TO:

FROM TITLE NUMBER(S):

1877132 PLP BAL

LAND INDEX:

LOT	BLOCK	SURVEY PLAN	
3	1	928	
NOTE:	N DIV	78-3W	EXC RES

ACCEPTED THIS 7TH DAY OF AUGUST, 2002
BY C.TROST FOR THE DISTRICT REGISTRAR OF
THE LAND TITLES DISTRICT OF PORTAGE.

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA
STORAGE SYSTEM ON 2009/11/24 OF TITLE NUMBER 1891245.

********** END OF STATUS OF TITLE 1891245 PLP **********

Appendix E

Health, Safety and Environmental procedures

HEALTH, SAFETY AND ENVIRONMENTAL COMPANY STATEMENT

Multicrete is committed to a strong Health Safety and Environmental Program that protect its Employees, Subcontractors, Customers or clients, the Public and Property from accidents and /or incidents.

Multicrete believes that all accidents are preventable. Our Goal is **ZERO** accidents. Active participation at all levels will ensure that our goal can be achieved.

Multicrete endeavours to provide proper and relevant employee training, job specific safe work practices, project and personal protection equipment, operation and maintenance procedures, and safety guidelines that focus Management, Employee and Subcontractors awareness on reducing the risk of accidents and / or incidents in all activities.

Multicrete and Subcontractor Employees are responsible for fully complying with all Health and Safety Standards and Regulations, and for co-operating with Management in the implementation of the Health, Safety & Environmental Program, worksite inspections, incident/accident investigations and in the continuous improvement of this program.

Multicrete is committed to protecting the environment in all aspects of our operations.

Multicrete Management, Subcontractor Management and all Employees are collectively responsible to ensure compliance with Local Government, Occupational Health, Safety and Environmental Regulations.

Signed:  Reviewed:_____

Georg Nickel
President & CEO

Spill Containment

PROCEDURE	
Serial N°	SPI-SJP-01

Facility:	Written By:	Approved By:	Date Created	Date of Last Revision:
Corporate	DJB	DJB	Dec. 1 2012	Jan. 5 2014

Hazards Present:	*PPE or Devices Required:*	*Additional Training Required:*
Chemical Inhalation Serious injury Chemical Burns	Steel toed boots Eye protection Hand protection Respirator Chemical Resistant suit Spill Kit	Spill Containment Training WHMIS

Safe Job Procedure:

1 Stop the spill at the source if possible
2 Cover drains and other escape routes if possible
3 Using patch kit, valve plug, or whatever is needed to patch the hole(s)
4 Contain the spill using the best method
- A. Build Dyke
- B. Replace or repair leak proof container
- C. Channel spill to a contained area or container
- D. Place an empty container under the leak
- E. Shift or rotate the leaking container to stop the leak

5 Using absorbent materials (soaker pads) to soak up the spill or solidify it
6 Push absorbent liquid mixture into approved container for proper disposal
7 Decontaminate any tools etc that came into contact with the spill (clothing, brooms, shovels)
8 Report and record the spill

If an emergency situation occurs while conducting this task, or there is an equipment malfunction, engage the emergency stop and follow the lock out procedure

REPORT ANY HAZARDOUS SITUATIONS TO YOUR SUPERVISOR

Guidance Documents/Standards:	This Safe Work Procedure will be reviewed any time the task, equipment or materials change and at a minimum of every three years
MB Workplace Safety & Health Act & Regulations: 2.1 Safe Work Procedures 4 General Workplace Requirements 6 Personal Protective Equipment 35 Workplace Hazardous Materials Information System 36 Chemical and Biological Substances	Reviewed By Worker Rep/WSH Committee: Date:

Handling Diesel Fuel

PROCEDURE	
Serial N°	HDF-SJP-01

Facility:	Written By:	Approved By:	Date Created	Date of Last Revision:
Corporate	DJB	DJB	Dec. 1 2012	Jan. 5 2013

Hazards Present:	*PPE or Devices Required:*	*Additional Training Required:*
Toxic vapors Flammable	Gloves Breathing apparatus Steel toed boots	Fire Extinguisher Training WHMIS First Aid

Safe Job Procedure:

1 Fill tanks in well vented area outside
2 Store all decanted diesel outdoors
3 Label all decanted containers as per WHMIS
4 Extinguish all flames, sparks and cigarettes while using it
5 Turn off engine before filling equipment or slip tanks
6 Use genuine spill proof gas containers if necessary to transport fuel to a site
7 Wash hands thoroughly after handling
8 Avoid inhaling fumes
9 Clean up spills immediately using a spill kit
10 Berm around bulk storage facilities

If an emergency situation occurs while conducting this task, or there is an equipment malfunction, engage the emergency stop and follow the lock out procedure

REPORT ANY HAZARDOUS SITUATIONS TO YOUR SUPERVISOR

Guidance Documents/Standards:	This Safe Work Procedure will be reviewed any time the task, equipment or materials change and at a minimum of every three years
MB Workplace Safety & Health Act & Regulations: 4 General Workplace Requirements 5 First Aid 6 Personal Protective Equipment 35 W.H.M.I.S - Requirement, Labelling, MSDS 36 Chemical & Biological Substances	Reviewed By Worker Rep/WSH Committee: Date:

Indoor Storage/Usage of Flammable Liquids

PROCEDURE	
Serial N°	IFL-SJP-01

Facility:	Written By:	Approved By:	Date Created	Date of Last Revision:
Corporate	DJB	DJB	Dec. 1 2012	Jan. 5 2013

Hazards Present:	*PPE or Devices Required:*	*Additional Training Required:*
Potential fire Inhalation of chemicals / toxins Burns	Steel toed boots Eye protection Hand protection	Fire Extinguisher Training WHMIS

Safe Job Procedure:

1 Safety containers shall be used at all times and provide content identification and hazard warnings
2 Flammable liquids are to be stored in a steel locker
3 Water reactive materials are prohibited in flammable liquid storage rooms
4 Warning signs alerting emergency personnel to the presence of flammable liquids must be posted at all entrances and storage areas
5 Supervisors are to inspect storage rooms quarterly to ensure compliance
6 Smoking, open flames, arcs, and spark-producing equipment are prohibited in the area
7 Ventilation shall be provided in sufficient quantities to keep the concentration of vapors below 10% of their lower explosive limit.
8 Frequent tests shall be made by a competent person to ascertain the concentration
9 Scraping and rags soaked with flammable materials shall be kept in a covered metal container
10 Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use
11 No more than three storage cabinets of flammable liquids shall be in a single workplace

If an emergency situation occurs while conducting this task, or there is an equipment malfunction, engage the emergency stop and follow the lock out procedure

REPORT ANY HAZARDOUS SITUATIONS TO YOUR SUPERVISOR

Guidance Documents/Standards:	This Safe Work Procedure will be reviewed any time the task, equipment or materials change and at a minimum of every three years
MB Workplace Safety & Health Act & Regulations: 6 Personal Protective Equipment 19 Fire and Explosive Hazards 35 Workplace Hazardous Materials Information Systems Safe Work Bulletin #178	Reviewed By Worker Rep/WSH Committee: Date:

Appendix F

Preventative Maintenance – Condition Inspection Plan

PM – Condition Inspection

Procedure #: TH-PP-00-04-001

THOMPSON PLANT - LINE 1 DRY LINE	Date:	Mark checked and NO Issue: ✔	Mark Pending Issue: X	Amendment Nº:

Weekly PM (W):	Monthly PM (M):	Quarterly PM (Q):	Semi-annual (S):	Annual PM (A):	24-Month PM (2xA):
Work order nº:	Work order nº:	Work order nº:	Work order nº:	Work order nº:	Work order nº:

	Dryer Infeed Conveyor Hopper M-102	Code 70-13-01045	PM Status		Work order nº	Comments
1	Screen: check wear		W			
2	Hopper body: check cracks, wear of Teflon		W			
3	Vibratory unit: check motor heat & condition		W			
4	Electrical cable: check clipping & condition		W			
5	Safety guards		W			
6	Local Disconnect: verify the functioning		M			
7	Other					

	Dryer Infeed (Belt) Conveyor M-101	Code 70-14-01045	PM Status		Work order nº	Comments
1	Head roller: check bearings, shaft, welds and hub		W			
2	Tail roller: check bearings, shaft, welds and hub		W			
3	Idler rollers-top: check bearings and wear		W			
4	Idler rollers-bottom: check bearings and wear		W			
5	Motor: check heat, noise, vibration & condition		W			
6	Gearbox: check leaks, noise and condition		W			
7	Drive Belt: check tension and condition		W			
8	Conveyor belt: check condition, alignment, and adjust if required		W			
9	Skirting: check condition. Replace or adjust if required		W			
10	Belt scraper: adjustment & conditions		W			
11	Motor cables: check clipping & condition		W			
12	Check safety guards and & Emergency cable		W			
13	Housekeeping: top and bottom		W			
14	Check the wear of components and replace if necessary		W			

Signature – Technician /Operator who performed the job:

Authorized by: Rick Stuart & Adrian Van Aert

Signature - Manager / Supervisor who verified the job:

15	Local Disconnect: verify the functioning		**M**			
16	Other					
Dryer M-103		**Code 70-15-01015**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition		**W**			
2	Gearbox: check leaks, noise and condition		**W**			
3	Chain drive: check tension and condition		**W**			
4	Drum hold-back wheels: check wear & condition		**W**			
5	Trunnion: check condition, wear, and alignment of wheels and drum tire. Adjust if required.		**W**			
6	Drum: check condition (visual)		**W**			
7	Check the lube system operation		**W**			
8	Flights (Build-up/Wear)		**W**			
9	Stack Build Up		**W**			
10	Infeed Hopper: check build-up and condition		**W**			
11	Check Oiling system of Trunnion		**W**			
12	Motor / Controls Cable Condition		**W**			
13	Safety Guards		**W**			
14	Other		**W**			
Dryer Burner Blower M-104		**Code 70-16-01015**	**PM Status**		**Work order nº**	**Comments**
1	Check leaks for air, and propane		**W**			
2	**Combustion air fan**: Check vibration, noise and crack		**W**			
3	**Gas Burner Controls**: check linkage settings. Adjust as required		**W**			
4	**Ignition**: Check easiness of ignition		**W**			
5	Check safety guards		**W**			
6	Motor / Controls Cable: check clipping & condition		**W**			
7	Check all safety equipment: safety guards pressure switches, solenoid valves, and gas safety shutoff valves.		**M**			
8	Check and clean UV scanner lenses: kept clean of dirt and dust.		**M**			
9	Check and clean the air openings around the burner front.		**M**			

Signature – Technician /Operator who performed the job:

Authorized by: Rick Stuart & Adrian Van Aert

Signature - Manager / Supervisor who verified the job:

10	Local Disconnect		**M**			
11	Other					
Dryer Screen Scalp Vibrator M-107		**Code 70-16-01015**	**PM Status**		**Work order nº**	**Comments**
1	Vibrator Motor: check for heat, noise, condition		**W**			
2	Screen: check wear and condition		**W**			
3	Scalp: check cracks and condition		**W**			
4	Vibrator motor cable: check clipping & condition		**W**			
5	Discharge Chute		**W**			
6	Local Disconnect: verify the functioning		**M**			
7	Other					
Dryer Outfeed Auger M-108		**Code 70-19-01090**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition		**W**			
2	Gearbox: check leaks and noise		**W**			
3	Discharge End Bearing: check condition		**W**			
4	Flighting visual: check condition		**W**			
5	Motor cable: check clipping & condition		**W**			
6	Check safety guards		**W**			
7	Local disconnect: verify the functioning		**M**			
8	Check the wear of the screw and replace if necessary		**S**			
9	Other					
Finish Bin Bucket Elevator M-109		**Code 70-20-01025**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition		**W**			
2	Gearbox: check for leaks, noise		**W**			
3	Drive chain: check chain tension and condition		**W**			
4	Drive shaft: check bearings condition		**W**			
5	Tail shaft: check bearings condition		**W**			
6	Check take-up works properly. Adjust screw take-up for belt tension as required		**W**			
7	Check for general wear and damage of belt, cup and framework		**W**			
8	Check missing cups, loose cups, and splice bolts		**W**			
9	Diverters: check their operation & light indicators		**W**			

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

10	Motor / control cables: check clipping & condition	**W**				
11	Check safety guards	**W**				
12	Local Disconnect: verify the functioning	**M**				
13	Diverters: Check diverter plate, air cylinder, proximity switch	**M**				
14	Other					
Loading Conveyor M-110 & Shuttle M-111	**Code 70-14-01050**	**PM Status**		**Work order nº**	**Comments**	
1	Head roller: check bearings, shaft, welds and hub	**W**				
2	Tail roller: check bearings, shaft, welds and hub	**W**				
3	Idler rollers-top: check bearings and wear	**W**				
4	Idler rollers-bottom: check bearings and wear	**W**				
5	Motor (Shuttle & Loading): check heat, noise, vibration & condition	**W**				
6	Gearbox (Shuttle & Loading): check leaks, noise and condition	**W**				
7	Drive mechanism: check tension and condition	**W**				
8	Conveyor belt: check condition, alignment, and adjust if required	**W**				
9	End Limit: check operation	**W**				
10	Motor / control cables: check clipping & condition	**W**				
11	Check safety guards	**W**				
12	Local Disconnect: verify the functioning	**M**				
13	Other					
Aggregate Bins (x 4)	**Code 70-28-01085 / 086 / 087 / 088**	**PM Status**		**Work order nº**	**Comments**	
1	Pneumatic Cylinders (x 8): check solenoids, air leaks & condition	**W**				
2	Compressed air lines: check air leaks	**W**				
3	Check Gate Condition / Loose Bolts	**W**				
4	Lubricator Operation	**W**				
5	High Level Sensor: check condition	**W**				
6	Sensors and Solenoid Cable: : check clipping & condition	**W**				

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

7	Check safety guards	**W**			
8	Bins body: check wear & Anti-segregate plate	**M**			
9	Heaters: check condition	**M**			
10	Other				

Agg Bins Weigh Conveyor M-114	**Code 70-14-01055**	**PM Status**		**Work order nº**	**Comments**
1	Head roller: check bearings, shaft, welds and hub	**W**			
2	Tail roller: check bearings, shaft, welds and hub	**W**			
3	Idler rollers-top: check bearings and wear	**W**			
4	Idler rollers-bottom: check bearings and wear	**W**			
5	Motor: check heat, noise, vibration & condition	**W**			
6	Gearbox: check for leaks, noise and condition	**W**			
7	Conveyor belt: check condition, alignment, and adjust if required	**W**			
8	Skirting: check condition. Replace or adjust if required	**W**			
9	Load cells: check condition.	**W**			
10	Motor and load cells cables: check clipping & condition	**W**			
11	Check safety guards	**W**			
12	Check the wear of components and replace if necessary	**W**			
13	Local Disconnect: verify the functioning	**M**			
14	Calibration: Proof of calibration report	**S**			
15	Other				

Dryer Exhaust Fan M-105	**Code 70-17-01025**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Belt drive: check tension and condition	**W**			
3	Check bearings condition	**W**			
4	Motor cable: check clipping & condition	**W**			
5	Check safety guards	**W**			
6	Fan: check wear and condition	**M**			
7	Local disconnect: verify the functioning	**M**			
8	Other				

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

Dryer De-Duster (Baghouse) & Discharge Auger M-106	**Code 70-18-01010 & 70-19-01095**	**PM Status**		**Work order nº**	**Comments**
1	Discharge auger motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check for leaks, noise, oil level	**W**			
3	Auger: Check the in-feed end bearing condition	**W**			
4	Verify pressure differential - MAGNEHELIC	**W**			
5	Verify Pulse Actuators	**W**			
6	Check air Leaks	**W**			
7	Motor / Pulse Actuator Coils Cable : check clipping & condition	**W**			
8	Check the sealing and the condition of all covers	**W**			
9	Check safety guards	**W**			
10	Inspect bags and replace if damaged	**S**			
11	Auger: Check the wear of the screw and replace if necessary	**S**			
12	Other				
Agg Bins De-Duster (Baghouse) M-112	**Code 70-18-01015**	**PM Status**		**Work order nº**	**Comments**
1	Fan Motor: check vibration, noise and heat	**W**			
2	Check bearing Condition	**W**			
3	Drive Belt: check tension and condition	**W**			
4	Verify pressure differential	**W**			
5	Fan: check wear and condition	**W**			
6	Verify Pulse Actuators	**W**			
7	Check air Leaks	**W**			
8	Motor / Pulse Actuator Coils Cable: check clipping & condition	**W**			
9	Check safety guards	**W**			
10	Inspect Inside Bags /Deflector	**S**			
11	Other				
Agg Bins De-Duster Rotary Vane M-113	**Code 70-36-01005**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check vibration, noise and heat	**W**			
2	Rotary Vane Gearbox: check leaks, noise and	**W**			

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	condition				
3	Check safety guards	**W**			
4	Other				
Mixer Infeed Belt Conveyor M-115	**Code 70-14-01060**	**PM Status**		**Work order nº**	**Comments**
1	Head roller: check bearings, shaft, welds and hub	**W**			
2	Tail roller: check bearings, shaft, welds and hub	**W**			
3	Idler rollers-top: check bearings and wear	**W**			
4	Idler rollers-bottom: check bearings and wear	**W**			
5	Motor: check heat, noise, vibration & condition	**W**			
6	Gearbox: check leaks, noise and condition	**W**			
7	Conveyor belt: check condition, alignment, and adjust if required	**W**			
8	Skirting: check condition. Replace or adjust if required	**W**			
9	Belt scarper: adjustment & conditions	**W**			
10	Motor cable: check clipping & condition	**W**			
11	Check safety guards and covers	**W**			
12	Local Disconnect: verify the functioning	**M**			
	Check the wear of components and replace if necessary	**S**			
13	Other				
Additional Mix Accelerator Hopper/ Auger M-118	**Code 70-19-01100**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check leaks, noise and condition	**W**			
3	Infeed End Bearing: check condition	**W**			
4	Screen: check wear and condition	**W**			
5	Rubber boot: check condition	**W**			
6	Motor Cable: check clipping & condition	**W**			
7	Flightings Visual	**A**			
8	Other				
Additional Mix Silica Fume Hopper / Auger M-119	**Code 70-19-01105**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			

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2	Gearbox: check leaks, noise and condition	**W**			
3	In feed End Bearing: check condition	**W**			
4	Screen: check wear and condition	**W**			
5	Rubber boot: check condition	**W**			
6	Vibrator: check condition	**W**			
7	Motor cable: check clipping & condition	**W**			
8	Flighting Visual	**A**			
9	Other				
Cement Weigh Hopper	**Code 70-39-01015**	**PM Status**		**Work order nº**	**Comments**
1	Pneumatic Cylinders: check solenoids, air leaks & condition	**W**			
2	Compressed airlines: check air leaks	**W**			
3	Vibratory: check condition	**W**			
4	Load cell: check condition	**W**			
5	Load cell / Solenoid Coil Cable : check clipping & condition	**W**			
6	Check body condition	**W**			
7	Check safety guards	**W**			
8	Calibration: Proof of calibration report	**S**			
	Other				
Voeller Mixer	**Code 70-29-01015**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check for leaks, noise and condition	**W**			
3	Drive belts: check tension. Adjust as required	**W**			
4	Door: check the drop door hinges for wear, and replace if worn	**W**			
5	**Arms and Paddles**: verify the paddles maximum clearance of 1/8 inch (3.2 mm) at the highest point of the mixer floor. Adjust if higher.	**W**			
6	**Hydraulic system**: check oil leaks and condition of lube pump / hydraulic pump	**W**			
7	**Door safety switches**: check operation	**W**			
8	Motor cable: check clipping & condition	**W**			
9	Check safety guards.	**W**			
10	Local Disconnect: verify the functioning	**M**			
11	Door: check if the door rubs on the guide rail.	**M**			

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	Adjust if it rubs.				
12	Door: check if the drop door closes too tightly or too loosely, and adjust	**M**			
13	Other				
Voeller Mixer Hydraulic Pump M-127	**Code 70-26-01025**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition				
2	Pump: check noise & leaks				
3	Check Belt : Tension and condition				
4	Oil Leaks & Operation				
5	Safety Guards				
Finished Product Auger M-131	**Code 70-19-01110**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check leaks, noise and condition	**W**			
3	Infeed End Bearing: check condition	**W**			
4	Flighting Visual	**W**			
5	Grease Bearings: Top and Bottom	**W**			
6	Hanger Bearing and Shaft	**W**			
7	Drive Belts: check tension and condition	**W**			
8	Motor Cable: check clipping & condition	**W**			
9	Check safety guards	**W**			
10	Other				
Bulk Bagger Feed Hopper	**Code 70-13-01035**	**PM Status**		**Work order nº**	**Comments**
1	Vibrator motor: check heat, noise & condition	**W**			
2	Hopper body: check cracks and condition	**W**			
3	Vibratory motor cable: check clipping & condition	**W**			
4	Check safety guards	**W**			
5	Local Disconnect: verify the functioning	**M**			
6	Other				
Bulk Bagger Feed Auger	**Code 70-19-01115**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise & condition	**W**			
2	Gearbox: check leaks, noise and condition	**W**			
3	Infeed End Bearing: check condition	**W**			
4	Discharge End Bearing: check condition	**W**			

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5	Flighting Visual	W			
6	Motor Cable: check clipping & condition	W			
7	Check safety guards	W			
8	Other				
Bulk Bagger / Scale	**Code 70-30-01015**	**PM Status**		**Work order nº**	**Comments**
1	Inspect Crane / Pendant / Tethering Cable / Cable / Hooks	W			
2	Check Scale cables	W			
3	Safety Check	W			
4	Calibration	M			
5	Other				
Bulk Bagger Wrapper	**Code 70-40-01010**	**PM Status**		**Work order nº**	**Comments**
1	Check Rollers and Chains	W			
2	Turn Table Rollers Inspection	W			
3	Check Oil Leaks & Operation	W			
4	Safety Check	W			
5	Other				
Weigh Hopper / Flyash Auger	**Code 70-19-01120**	**PM Status**		**Work order nº**	**Comments**
1	Check Butterfly Valves	W			
2	Rubber Boots: check condition	W			
3	Auger Gearbox: check leaks	W			
4	Flighting Visual	A			
5	Grease Auger Bearings	W			
6	Vibrators: check condition	W			
7	Aerators: check condition	W			
8	Check safety guards	W			
9	Calibration: Proof of calibration report	S			
10	Other				
Silos	**Code 70-28-01090**	**PM Status**		**Work order nº**	**Comments**
1	Check Oil Leaks & Operation	W			
2	Rubber Boots (4): check condition	W			
3	Dust Collections System: check condition	W			
4	Vein Feeder (2): check condition	W			
5	Grease Flyash Auger Bearings (2)	W			
6	Check that pop valves are clear and working	W			

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7	Relief Valve: check condition	**W**			
8	Safety Check	**W**			
9	Other				
Floor Heaters	**Code 70-34-01025**	**PM Status**		**Work order nº**	**Comments**
1	Back Shop Heater (lab): check condition	**W**			
2	Wash Bay Heater (lunchroom): check condition	**W**			
3	Safety check	**W**			
4	Other				
Air Compressor	**Code 70-21-01035**	**PM Status**		**Work order nº**	**Comments**
1	Air filter: clean the filter	**W**			
2	Cooler: clean the cooler	**W**			
3	Safety valves: are not obstructed by dirt	**W**			
4	Air outlet valve and air system: (i.e. joints, manifolds, valves, tubes etc.) are in proper condition without any wear or defect	**W**			
5	Check the coupling	**A**			
6	Other				
Air Dryer - Desiccant Dryer	**Code 70-23-01015**	**PM Status**		**Work order nº**	**Comments**
1	Piping and tubing: in proper condition and firmly attached	**W**			
2	There are no liquid or air leaks	**W**			
3	Safety valves: are not obstructed by dirt	**W**			
4	Air outlet valve and air system: (i.e. joints, manifolds, valves, tubes etc.) are in proper condition without any wear or defect	**W**			
5	Check your operating conditions: inlet flow, inlet pressure, and inlet temperature.	**M**			
6	Check pre-filters and after-filters.	**M**			
7	Check dryer cycle and sequence of operations. (i.e. drying, depressurizing, regenerating, heating, and cooling)	**M**			
8	Check tower temperature gauges during third and fourth hour of regeneration cycle.	**M**			
9	Replace pre-filter and after-filter elements.	**Q**			
10	Check pilot air filter element and clean.	**Q**			
11	Check outlet dewpoint.	**S**			

Signature – Technician /Operator who performed the job:

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12	Blow down relief valves	**S**			
13	Check desiccant and replace if necessary.	**A**			
14	Inspect and clean pilot operated valves and replace packings as required.	**A**			
15	Inspect and clean pilot operated valves and replace packings as required.	**A**			
16	Inspect and clean solenoid valves, check valves, purge lines and lubricated plug valves.	**A**			
17	Test lights and switches, replace as necessary.	**A**			
18	Test electrical components, replace as necessary	**A**			
19	Other				

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

PM – Condition Inspection

Procedure #: TH-PP-00-04-002

THOMPSON PLANT 2 - WET LINE	Date:	Mark checked and NO Issue: ✔	Mark Pending Issue: X	Amendment Nº:

Weekly PM (W):	Monthly PM (M):	Quarterly PM (Q):	Semi-annual (S):	Annual PM (A):	24-Month PM (2xA):
Work order nº:	Work order nº:	Work order nº:	Work order nº:	Work order nº:	Work order nº:

	Infeed Conveyor Hopper M-203	Code	PM Status		Work order nº	Comments
1	Screen: check wear		W			
2	Hopper body: cracks & condition		W			
3	Vibratory unit: check motor heat & condition		W			
4	Electrical cable: check clipping & condition		W			
5	Safety guards		W			
6	Local Disconnect: verify the functioning		M			
7	Other					

	Infeed Conveyor M-201	Code	PM Status		Work order nº	Comments
1	Head roller: check bearings, shaft, welds and hub		W			
2	Tail roller: check bearings, shaft, welds and hub		W			
3	Idler rollers-top: check bearings and wear		W			
4	Idler rollers-bottom: check bearings and wear		W			
5	Motor: check heat, noise, vibration & condition		W			
6	Gearbox: check leaks, noise and condition		W			
7	Drive Belt: check tension and condition		W			
8	Conveyor belt: check condition, alignment, and adjust if required		W			
9	Skirting: check condition. Replace or adjust if required		W			
10	Belt scraper: adjustment & conditions		W			
11	Motor cables: check clipping & condition		W			
12	Check safety guards and covers		W			
13	Housekeeping: Top & bottom		W			
14	Check the wear of components and replace if necessary		W			

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

15	Local Disconnect: verify the functioning	**M**			
16	Other				

Dryer To Wet Mix Auger M - 207	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check leaks, noise and condition	**W**			
3	Infeed End Bearing Condition l: check condition	**W**			
4	Discharge End Bearing Condition l: check condition	**W**			
5	Hanger Bearing: check condition	**W**			
6	Flighting visual: check condition	**W**			
7	Motor cable: check clipping & condition	**W**			
8	Check safety guards	**W**			
9	Local Disconnect: verify the functioning	**M**			
10	Other				

Shuttle Conveyor	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Head roller: check bearings, shaft, welds and hub	**W**			
2	Tail roller: check bearings, shaft, welds and hub	**W**			
3	Idler rollers-top: check bearings and wear	**W**			
4	Idler rollers-bottom: check bearings and wear	**W**			
5	Motor: check heat, noise, vibration & condition	**W**			
6	Gearbox: check leaks, noise and condition	**W**			
7	Drive Belt: check tension and condition	**W**			
8	Conveyor belt: check condition, alignment, and adjust if required	**W**			
9	Skirting: check condition. Replace or adjust if required	**W**			
10	Diverter: check operation & Indicator Lights	**W**			
11	Pneumatic Cylinders: check solenoids, airlines & condition	**W**			
12	Compressed air lines: check leaks	**W**			
13	Motor cable: check clipping & condition	**W**			
14	Check safety guards	**W**			
15	Housekeeping: Top & bottom	**W**			
16	Local Disconnect: verify the functioning	**M**			

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

17	Other				
Aggregate Bins M-204, M-205, M-206	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Pneumatic Cylinders: check solenoids, airlines & condition	**W**			
2	Vibrator Motor (x3): check heat, noise, & condition	**W**			
3	Check Filter/Regulator/Lubricator (x3)	**W**			
4	Check Capacitance Probe Condition	**W**			
5	Check Loadcell Condition	**W**			
6	Compressed air lines: check air leaks	**W**			
7	Check Gate Condition / Loose Bolts	**W**			
8	Bins body: check wear	**W**			
9	Motor / Loadcell / Solenoid Coil Cable: check clipping & condition	**W**			
10	Check safety guards	**W**			
11	Other				
Agg Bins Transfer Belt Continued	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Skirting: check condition. Replace or adjust if required	**W**			
2	Life line: check operation	**W**			
3	Motor / Life line electrical cable: check clipping & condition	**W**			
4	Check safety guards and covers	**W**			
5	Local disconnect: verify the functioning	**M**			
6	Other				
Incline To Truck M-208	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Head roller: check bearings, shaft, welds and hub	**W**			
2	Tail roller: check bearings, shaft, welds and hub	**W**			
3	Idler rollers-top: check bearings and wear	**W**			
4	Idler rollers-bottom: check bearings and wear	**W**			
5	Motor: check heat, noise, vibration & condition	**W**			
6	Gearbox: check for leaks, noise and condition	**W**			
7	Drive belt: check tension and condition	**W**			

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Signature - Manager / Supervisor who verified the job:

8	Conveyor belt: check condition, alignment, and adjust if required	**W**			
9	Other				

Weigh Hopper	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Check butterfly valve	**W**			
2	Rubber boot: check condition	**W**			
3	Air Vibrator (x2): check condition	**W**			
4	Check Filter/Regulator/Lubricator	**W**			
5	Check Aerators	**W**			
6	Check Load cell condition	**W**			
7	Check load cell cable condition	**W**			
8	Check safety guards	**W**			
9	Calibration: Proof of calibration report	**S**			
10	Other				

Cement Silo	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Gearbox: check leaks, noise and condition	**W**			
3	V-Belt: check condition	**W**			
4	Rubber Boots (4): check condition	**W**			
5	Dust Collections System: check condition	**W**			
6	Vein Feeder (2): check condition	**W**			
7	Check that pop valves are clear and working	**W**			
8	Relief Valve: check condition	**W**			
9	Safety Check	**S**			
10	Other				

Water Weigh Hopper	**Code**	**PM Status**		**Work order nº**	**Comments**
1	Motor: check heat, noise, vibration & condition	**W**			
2	Pump: check leaks & condition	**W**			
3	Safety valves: are not obstructed by dirt	**W**			
4	Load cell: check condition	**W**			
5	Load cell Electrical cable: check clipping & condition	**W**			
6	Calibration of Load cell: Proof of calibration report	**S**			
7	Other				

Signature – Technician /Operator who performed the job:

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Signature - Manager / Supervisor who verified the job:

Signature – Technician /Operator who performed the job:

Authorized by: Rick Stuart & Adrian Van Aert

Signature - Manager / Supervisor who verified the job:

Appendix G

Material Safety Data Sheets & Technical Data Sheets

Construction

Sika® Plastocrete® 161CA

Water-Reducing, Polymer-Type and Non-Corrosive Admixture

Description

Sika® Plastocrete® 161CA is a water reducing, polymer based admixture for concrete. Sika® Plastocrete® 161CA is a highly purified and concentrated multi-component admixture. It contains no chlorides.

Where to Use

Sika® Plastocrete® 161CA is designed for use in all types of concrete where a water reducing, strength increasing admixture is required.

Advantages

Sika® Plastocrete® 161CA improves the performance of concrete in the plastic and hardened state providing:

- Improved workability
- Improved finishing characteristics
- Improved durability and permeability
- Increased flexural and compressive strength
- Reduced segregation and cracking
- Improved formed surfaces

Standards

Conforms to :

- ASTM C494, TYPE A
- AASHTO M-194, TYPE A
- CRD C-87, TYPE A

Typical Data

Packaging	20 L (5.2 US gal.) pail 205 L (54 US gal.) drum 1040 L (275 US gal.) IBC Bulk delivery.
Colour and Form	Dark brown liquid
Shelf Life and Storage	1 year when stored in dry warehouse conditions between 10 - 27°C (50 - 80°F). Store at above 5°C (40°F). If frozen, thaw and agitate thoroughly to return to normal state before use
Properties	
Specific Gravity	Approx. 1.2

How to Use

Dosage

Sika® Plastocrete® 161CA is normally added to the concrete at a rate of 250 - 500 mL/100 kg of cementitious material. Specific dosage requirements will be dependent on local materials and the intended use of the concrete. Please contact your Sika Canada Technical Sales Representative for further information.

Mixing

Sika® Plastocrete® 161CA is compatible with air entraining admixtures and super-plasticizers. Sika® Plastocrete 161CA should be dispensed separately with the water at the time of batching. Do not mix directly with other admixtures.

Clean Up

Use personal protective equipment (chemical resistant goggles/gloves/clothing). Without direct contact, remove spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the **most recent Material Safety Data Sheet** containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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An ISO 9001 certified company
Pointe-Claire: ISO 14001 certified EMS

Construction

Sika® AER^{CA}

Vinsol® Resin-Based Air Entraining Admixture for Exposed Concrete

Description

Sika® AER^{CA} is a Vinsol® resin-based air entraining admixture, designed for use with freeze/ thaw exposed concrete in marine or de-icing salt conditions.

Where to Use

Recommended for all normal, low and very low slump concrete exposed to freeze-thaw in the the presence of de-icing salts or sea water.

Advantages

- Entrains effective and stable air void matrix.
- Reduces potential deterioration due to freeze-thaw cycles.
  - In a saturated condition.
  - In the presence of de-icing salts.
- Reduces bleeding and segregation.
- Improves cohesiveness and workability.
- Enhances finishing characteristics.
- Approved by the Ontario Ministry of Transportation.

Standards

Conforms to :
- ASTM C260
- AASHTO M-154
- CRD C-13

Typical Data

Packaging	20 L (5.2 US gal.) pail 205 L (54 US gal.) drum 1040 L (275 US gal.) IBC container Bulk delivery
Colour and Form	Dark brown liquid
Shelf Life and Storage	1 year when stored in dry warehouse conditions between 10 - 27°C (50 - 80°F). Store at above 5°C (40°F). If frozen, thaw and agitate thoroughly to return to its normal state before use.
Properties	
Specific Gravity	1.05

How to Use

Dosage

Sika® AER^{CA} is normally dosed at a rate of 30 - 150 mL/100 kg of cementitious material. Dosage rates will vary with local materials, conditions and intended concrete performance requirements.

Mixing

Sika® AER^{CA} must be dispensed separately from other admixtures, with the mix water, at time of batching.

Clean Up

Use personal protective equipment (chemical resistant goggles/gloves/clothing). Without direct contact, remove spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the **most recent Material Safety Data Sheet** containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

Sika Canada Inc.
Head Office
601 Delmar Avenue
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H9R 4A9

Other locations
Toronto
Edmonton
Vancouver

1-800-933-SIKA
www.sika.ca

An ISO 9001 certified company
Pointe-Claire: ISO 14001 certified EMS

Sika ViscoCrete® Technology

Construction

Sika® ViscoCrete® 2100

High Range Water Reducing Admixture

Description

Sika® ViscoCrete® 2100 is a high range water reducing and superplasticizing admixture utilizing Sika's ViscoCrete® polycarboxylate polymer technology.

Where to Use

- Sika® ViscoCrete® 2100 may be used in both ready-mix and precast applications, as a plant added high range water reducer to provide excellent plasticity while maintaining slump for up to 90 minutes. Controlled set times make Sika® ViscoCrete® 2100 ideal for horizontal and vertical applications.
- Sika® ViscoCrete® 2100 is ideal for production of Self-Consolidating Concrete (SCC).

Advantages

Water Reduction: Sika® ViscoCrete® 2100 can be dosed in small amounts to obtain water reduction from 10 - 15% and will achieve water reduction up to 45% at high dosage rates. Sika® ViscoCrete® 2100 is suitable for all levels of water reduction.

High Plasticity: The superplasticizing action of Sika® ViscoCrete® 2100 provides high-slump, flowing concrete that maintains excellent workability and may be placed with minimal vibration even at very low water cement ratio's as low as 0.25.

Sika® ViscoCrete® 2100 plasticized concrete is highly fluid while maintaining complete cohesion within the concrete matrix to eliminate excessive bleeding or segregation.

Extended Slump Life and Set Control: Sika® ViscoCrete® 2100 has been formulated to provide controlled and predictable extended slump life for periods of 60 to 90 minutes with normal set times.

The combined high range water reduction and superplasticizing action of Sika® ViscoCrete® 2100 provide the following benefits in hardened concrete:

- Higher ultimate strengths allow for greater engineering design flexibility and structural economies.
- Reduced water cement ratios produce more durable, dense concrete with reduced permeability.
- Highly effective plasticizer reduces surface defects in concrete elements and improves aesthetic appearance.

It has been formulated to provide maximum water reduction and extended slump retention at low dosages.

- Approved by the Ontario Ministry of Transportation.
- Approved by the Ministère des Transports du Québec.

Standards

Sika® ViscoCrete® 2100 meets the requirements for ASTM C494 Types A and F and AASHTO M-194 Type A and F.

Typical Data	
Packaging	205 L (54 US gal.) drum 1040 L (275 US gal.) IBC container Bulk delivery
Colour and Form	Light blue liquid
Shelf Life and Storage	1 year when stored in dry warehouse conditions between 10 - 27°C (50 - 80°F). Store at above 2°C (35°F). If frozen, thaw and agitate thoroughly to return to normal state.
Properties	
Specific Gravity	Approx. 1.08

Construction

How to Use

Dosage

Dosage rates will vary according to materials used, ambient conditions and the requirements of a specific project. Sika recommends dosage at 130 - 390 mL/100 kg of cementitious for conventional concrete applications. If high slump or Self-Consolidating Concrete (SCC) is required, dosage from 390 - 780 mL/100 kg of cementitious may be used.

Dosage rates outside the recommended range may be used where specialized materials such as microsilica are specified, extreme ambient conditions are encountered or unusual project conditions require special consideration. Please contact your Sika Canada Technical Sales Representative for more information and assistance.

Curing

Proper curing according to ACI guidelines should be always followed to achieve maximum possible quality of concrete.

Mixing

For best superplasticizing results, add Sika® ViscoCrete® 2100 directly to freshly mixed concrete in the concrete mixer at the end of the batching cycle. Sika® ViscoCrete® 2100 may also be dispensed as an integral material during the regular admixture batching cycle, or into freshly mixed concrete in a ready-mix truck, at the concrete plant or at the job site. To optimize the superplasticizing effect after the addition of Sika® ViscoCrete® 2100, Sika recommends that the combined materials be mixed for 60 - 80 revolutions either in the concrete mixer or in the ready-mix truck.

Combination with other admixtures: Sika® ViscoCrete® 2100 is highly effective as a single admixture or in combination with other Sika admixtures. If used in combination with certain Sikament® high range water reducers it may affect the plastic properties of fresh concrete. Please contact your Sika Canada Technical Sales Representative for further information.

Combination with microsilica: Sika® ViscoCrete® 2100 is particularly well suited for use with microsilica because of its water reduction capability. Do not introduce Sika® ViscoCrete® 2100 directly onto dry cementitious materials.

Clean Up

Use personal protective equipment (chemical resistant goggles/gloves/clothing). Without direct contact, remove spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

Health and Safety Information

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Construction

SikaTard-930

Hydration Stabilizer for Shotcrete and Ready-Mix Applications

Description

SikaTard-930 is an admixture for the control of cement hydration. SikaTard-930 allows stabilization of concrete mixes for long periods without negatively influencing the quality.

Where to Use

- Wet and dry shotcrete applications.
- Ready-mix applications.
- Wherever the controlled set times are required.
- Where the prevention of cement hydration in concrete is required.

Advantages

- SikaTard-930 can be used to control and stabilize cement hydration.
- SikaTard-930 does not contain chlorides.
- Concrete containing SikaTard-930 can be accelerated by Sika® Sigunit® accelerators at any time without loss of quality.

Typical Data

Packaging	205 L (54 US gal.) drum 1040 (275 US gal.) IBC container Bulk delivery
Colour and Form	Clear liquid
Shelf Life and Storage	1 year when stored in dry warehouse conditions between 10 - 27°C (50 - 80°F). Protect from direct sun and freezing temperatures. Store at above 5°C (40°F). If frozen, thaw and agitate thoroughly to return to normal state
Properties	
Specific Gravity	Approx. 1.1

How to Use

Dosage

Dosage rates will vary according to materials used, ambient conditions and the requirements of a specific project. Sika recommends dosage at 250 - 2000 mL/100 kg of cementitious materials depending on the retardation time.

Dosage rates outside the recommended range may be used where specialized materials such as microsilica are specified, extreme ambient conditions are encountered or unusual project conditions require special consideration. In such cases, please contact your Sika Canada Technical Sales Representative for further information.

Mixing

For best results, add SikaTard-930 to the mix together with the mixing water. During the wet process shotcreting Sika® Sigunit® accelerator is added at the spray nozzle to initiate fast setting.

Preliminary trials on site should be conducted to determine the required dosage rates. To optimize the stabilizing effect, after the addition of SikaTard-930, Sika recommends that the combined materials be mixed for 80 - 100 revolutions, either in the concrete mixer or in the ready-mix truck.

Combination with other admixtures:
SikaTard-930 can be used in conjunction with all Sika® Sigunit® accelerators. It is also highly effective as single admixture.

Clean Up

Use personal protective equipment (chemical resistant goggles/gloves/clothing). Without direct contact, remove spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable environmental regulations.

Construction

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the **most recent Material Safety Data Sheet** containing physical, ecological, toxicological and other safety-related data.

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MATERIAL SAFETY DATA SHEET

Material: Portland Cement

Approved by	W. Galloway	Senior Vice President	Date of revision	01. January 2011	Page 1 of 5

Control Number: XA.11.101

Section I - Identification

Supplier
Name: Holcim (Canada) Inc.

Address 2300 Steeles Ave. W. 4th floor
Concord, Ontario, L4K 5X6

Telephone: 905-761-7100

Emergency Information
Contact: (CANUTEC)
Telephone: (613) 996-6666

Note: The CANUTEC number is to be used only in the event of chemical emergencies involving a spill, fire, exposure or accident involving chemicals.

WHMIS Classification: D2A, E

Material Uses: The Portland cement is the binding ingredient in most concrete mixes. Concrete is widely used as a building material for structures and pavements.

Product Codes: Portland Cement: CSA A 3000 Type GU, MS, MH, HE, LH, HS. ASTM C 150 Type I, II, III, IV, V. Portland White Cement. This MSDS covers many products. Individual constituents will vary.

Formula: This product consists of finely ground Portland cement clinker mixed with a small amount of calcium sulfate (gypsum).

Chemical Family: Calcium compounds. Calcium silicate components and other calcium compounds containing iron and aluminum make up the majority of this product.

Chemical Name and Synonyms: Portland cement. Portland cement is also known as hydraulic cement.

Section II - Components

Hazardous Ingredients

Component	CAS #	% by Weight	OSHA PEL (mg/m^3)	ACGIH TLV-TWA (mg/m^3)
Portland Cement	65997-15-1	100	15 (T) ; 5 (R)	1 (R) (E)
Calcium Sulphate	7778-18-9	3 – 7	15 (T) ; 5 (R)	10 (I)
Calcium Oxide	1305-78-8	0 – 2	5	2
Calcium Carbonate	1317-65-3	0 – 5	15 (T) ; 5 (R)	TLV® withdrawn
Crystalline Silica	14808-60-7	< 0.2	[(10) / (% SiO_2 + 2)] (R) [(30) / (% SiO_2 + 2)] (T)	0.025 (R)

(T) = Total Dust ; (I) = Inhalable Fraction; (R) = Respirable Fraction; (E) = Particulate matter containing no asbestos and < 1% crystalline silica

Trace constituents: Portland Cement has a variable composition depending upon the cementitious products produced in the cement kiln. Small amounts of naturally occurring, but potentially harmful, chemical compounds might be detected during chemical analysis. These trace compounds might include free crystalline silica, potassium and sodium compounds; heavy metals including cadmium, chromium, nickel and lead; and organic compounds. Other trace constituents may include calcium oxide (also known as free lime or quick lime) .

Section III – Hazards Identification

Emergency Overview
Portland cement is a light gray powder that poses little immediate hazard. A single short-term exposure to the dry powder is not likely to cause serious harm. However, exposure to wet portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns or an allegoric reaction. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry portland cement.

Potential Health Effects
• *Relevant Routes of Exposure:* Eye contact, skin contact, inhalation, and ingestion
• *Effects resulting from eye contact:* Exposure to airborne dust may cause immediate or delayed irritation or inflammation.
Eye contact with larger amounts of dry powder or splashes of wet Portland cement may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see section IV) and medical attention to prevent

significant damage to the eye.

• *Effects resulting from skin contact:* Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred. Exposure to dry Portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry portland cement contacting wet skin or exposure to moist or wet portland cement may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns. Some individuals may exhibit an allergic response (e.g., allergic contact dermatitis) upon exposure to portland cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with the product. Other persons may experience this effect after years of contact with portland cement products.

• *Effects resulting from inhalation:* Portland cement contains small amounts of free crystalline silica. Prolonged exposure to respirable free crystalline silica can aggravate other lung conditions and cause silicosis, a disabling and potentially fatal lung disease and/or other diseases. Risk of injury or disease depends on duration and degree of exposure. (Also see “Carcinogenic potential” below.) Exposure to Portland cement may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

• *Effects resulting from ingestion:* Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. Portland cement should not be eaten.

• *Carcinogenic potential: NTP, OSHA, or IARC has not listed Portland cement as a carcinogen*. It may, however, contain trace amounts of substances listed as carcinogens by these organizations. Crystalline silica, which is present in Portland cement in small amounts, has been listed by IARC and NTP as a known human carcinogen (Group I) through inhalation. Hexavelant chromium is listed by IARC, EPA, NTP and OSHA as Group I known carcinogen by inhalation.

• *Medical conditions which may be aggravated by inhalation or dermal exposure*:

- Pre-existing upper respiratory and lung diseases
- Unusual (hyper) sensitivity to hexavalent chromium (chromium^{+6}) salts.

Section IV – First Aid

Eyes: Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment in all cases of prolonged exposure to wet cement, wet cement mixtures, wet concrete liquids from fresh cement products, or prolonged wet skin exposure to dry cement.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing or other symptoms do not subside. (Inhalation of gross amounts of portland cement requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Section V – Fire & Explosion Data

Flash Point:	*Not Combustible*	Auto Ignition Temperature:	*Not Combustible*
Lower Explosive Limit:	*None*	Upper Explosive Limit	*None*
Extinguishing Media:	*Not Combustible*	Unusual Fire and Explosion Hazards:	*None*
Hazardous Combustion Products:	*None*		
Special Fire Fighting Procedures:	*None*. (Although portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)		

Section VI – Accidental Release Measures

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section VIII.

Scrape up wet material and place in an appropriate container. Allow the material to “dry” before disposal. Do not attempt to wash Portland cement down drains.

Dispose of waste material according to local, state, and federal regulations.

Section VII – Handling & Storage

Keep portland cement dry until used. Normal temperatures and pressures do not affect the material. Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures or fluids.

Section VIII – Exposure Control/Personal Protection

***Skin Protection**:* Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened wet portland cement products. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened portland cement products might occur, wear impervious clothing and gloves to prevent skin contact. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. Do not rely on barrier creams; barrier creams should not be used in place of impervious gloves and clothing. Periodically wash areas contacted by dry portland cement or wet cement or concrete with a pH neutral soap. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean, dry clothing.

***Respiratory protection**:* Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits. Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998, must be certified under 42 CFR 84.)

***Ventilation**:* Use local exhaust or general dilution ventilation to control exposure within applicable limits.

***Eye Protection**:* In conditions where user may be exposed to splashes or puffs of cement, wear safety glasses with side shields or goggles. In extremely dusty or unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with portland cement or fresh cement products.

Section IX – Physical & Chemical Properties

Appearance:	*Grey or White Powder*	Vapor Pressure:	*Not Applicable*
Odor:	*No Distinct Odor*	Vapor Density:	*Not Applicable*
Physical State:	*Solid (Powder)*	Boiling Point:	*Not Applicable*
pH (in water):	*12 - 13*	Melting Point:	*Not Applicable (i.e. >1000 °C)*
Solubility in Water:	*Slightly Soluble (0.1 to 1.0%)*	Specific Gravity (H_2O = 1)	3.15
Evaporation Rate:	*Not Applicable*		

Section X – Stability & Reactivity

Stability:	*Stable*
Incompatibility:	*Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts, and aluminum metal.*
Conditions to Avoid:	*Unintentional contact with water.*
Hazardous Decomposition:	*Will not spontaneously occur. Adding water produces (caustic) calcium hydroxide as a result of hydration.*
Hazardous Polymerisation:	*Will not occur.*

Section XI – Toxicological Information

For a description of available, more detailed toxicological information, contact Holcim (Canada) Inc. (Contact Details in Section I).

Section XII – Ecological Information

Ecotoxicity:	*No recognized unusual toxicity to plants or animals*
Relevant Physical & Chemical Properties:	*See Sections IX & X*

Section XIII – Disposal

Dispose of waste material according to local, state, and federal regulations. (Since portland cement is stable, uncontaminated material may be saved for future use.) Dispose of bags in an approved landfill or incinerator.

Section XIV – Transportation Data

Hazardous Materials Description/Proper Shipping Name:	*Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations and Canadian Transportation of Dangerous Goods (TDG) Regulation*
Hazard class:	*Not applicable*
Identification class:	*Not applicable*
Required label text:	*Not applicable*
Hazardous substances/reportable quantities (RQ):	*Not applicable*

Section XV – Other Regulatory Information

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200:	*Portland cement is considered a hazardous chemical under this regulation, and should be part of any hazard communication program.*
Status under CERCLA/Superfund, 40 CRF 117 and 302:	*Not listed.*
Hazard Category under SARA (Title III), Sections 311 and 312:	*Portland cement qualifies as hazardous substance with delayed health effects under Sections 311 and 312.*
Status under SARA (Title III), Section 313:	*Not subject to reporting requirements under Section 313.*
Status under TSCA (as of May 1997):	*Some substances in Portland cement are on the TSCA inventory list.*
Status under the Federal Hazardous Substances Act:	*Portland cement is a hazardous substance subject to statutes promulgated under the subject act.*
Status under California Proposition 65:	*This product contains chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.*
Status under Canadian Environmental Protection Act:	*Not listed.*
Status under Workplace Hazardous Materials Information System (WHMIS):	*Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A – Chronic Toxic Effect and Class E – Corrosive Material) and is therefore subject to the labelling and MSDS requirements of WHMIS.* *This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR*

Section XVI – Other Information

Portland cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that Portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is setting) pose a far more severe hazard than does Portland cement itself.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of Portland cement as it is commonly used, this sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland cement to produce Portland cement products. Users should review other relevant material safety data sheets before working with this Portland cement or working on Portland cement products, for example, Portland cement concrete.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OF THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HOLCIM (CANADA), EXCEPT THAT THE PRODUCT SHALL CONFORM TO CONTRACTED SPECIFICATIONS.

The information provided herein was believed by Holcim (Canada) Inc. to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as for product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise, shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

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13-02-2013

CEMENT TEST REPORT

Mississauga Plant

CEMENT TYPE : HSF

SAMPLE PERIOD : 01-01-2013 - 01-02-2013

Chemical Analysis (%) :	
LOI	1.49
SiO2	26.81
Al2O3	4.94
Fe2O3	2.23
CaO	56.47
MgO	2.20
SO3	3.81
Total Alkali	1.00
C3A	9.31
C4AF	6.79

Physical Analysis :	
Residue 45um (%)	5.12
Blaine (m2/kg)	878
Air Content (%)	6.41
Initial Set (mins.)	110
Final Set (mins.)	269
Auto. Exp. (%)	0.03
Sulf. Exp. (%) (prev month)	0.006
Compressive Strength (MPa)	
1 Day	20.68
3 Days	28.95
7 Days	38.77
28 Days (prev month)	50.84

This certifies compliance with C.S.A A3001-08 GUb-8SF and A.S.T.M. C 595 Blended Hydraulic Cement - Normal Portland cement with silica fume at 8% addition - by weight.

The product blend information is based on blended proportions used during this test period. The data is typical of product shipped by Holcim (Canada) Inc.. Individual shipments may vary.

Alain Peeters
Quality Manager

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13-02-2013

CEMENT TEST REPORT

Mississauga Plant

CEMENT TYPE : **Type N Masonry**

SAMPLE PERIOD : **01-01-2013 - 01-02-2013**

Chemical Analysis (%) :

LOI	15.72
SO3	2.42

Physical Analysis :

Residue 45um (%)	7.74
Blaine (m2/kg)	553
Air Content (%)	19.89
Initial Set (mins.)	210
Auto. Exp. (%)	0.06

Compressive Strength (MPa)

7 Days	5.84
28 Days (prev month)	10.11

This certifies compliance with C.S.A. A3002-08 (latest revision) Type N Masonry cement.

Alain Peeters
Quality Manager

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13-02-2013

CEMENT TEST REPORT

Mississauga Plant

CEMENT TYPE : GranCem

SAMPLE PERIOD : 01-01-2013 - 01-02-2013

Chemical Analysis (%) :

Sulphide Sulphur (S)	1.02
Sulphate reported as SO3	2.55

Reference Cement

Total Alkali as Na2O equiv. (%)	0.86
7 Days, MPa	27.61
7 Days, psi	4004
28 Days, MPa (prev month)	34.47
28 Days, psi (prev month)	5000

Physical Analysis :

Residue 45um (%)	0.94
Blaine (m2/kg)	660
Autoclave Exp.(%), prev. month	0.00
Air Content, %	5.37
Compressive Strength (50:50 cement:slag)	
7 Days, MPa	20.30
7 Days, psi	2944
7 Days, Slag Activity Index, %	73.6
28 Days, MPa (prev month)	35.94
28 Days, psi (prev month)	5212
28 Days (prev month), Slag Activity Index, %	104.3

Testing methods and equipment used comply with the requirements of CSA A3003, 3004, 3005, and ASTM 989. This cement test report certfies this product meets with CSA A3001 Type S Ground Granulated Blast-Furnace Slag.

Alain Peeters
Quality Manager

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February 13, 2013

CEMENT TEST REPORT
Mississauga Plant

CEMENT TYPE : GU
SAMPLE PERIOD : 01-01-2013 – 02-01-2013

Chemical Analysis (%) :

LOI	1.80
SiO_2	19.76
Al_2O_3	5.34
Fe_2O_3	2.40
CaO	62.60
MgO	2.45
SO_3	3.73
Total Alkali	1.04
Free Lime	1.15
Insol. (prev. month)	0.54

C_3S	54.7
C_2S	15.4
C_3A	10.1
C_4AF	7.3

Physical Data :

Residue 45μm (%)	7.01
Blaine (m^2/kg)	383
Initial Set (mins.)	110
Air Content (%)	6.33
Autoclave Exp. (%)	0.09
Sulf. Exp. (%) (prev mth)	0.010
Comp. Strength (MPa)	
1 Day	18.30
3 Days	27.06
7 Days	31.90
28 Days (prev month)	38.70

This certifies compliance with CSA A3001-08 General use hydraulic cement (Type 10 Normal Portland cement).

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13-02-2013

CEMENT TEST REPORT

Mississauga Plant

CEMENT TYPE : GUL

SAMPLE PERIOD : 01-01-2013 - 01-02-2013

Chemical Analysis (%) :	
LOI	4.97
SiO2	18.76
Al2O3	5.05
Fe2O3	2.26
CaO	60.24
MgO	2.29
SO3	4.15
Total Alkali	0.97
Free Lime	0.88
Insol. (prev. month)	- - -
C3S	53.63
C2S	13.32
C3A	9.56
C4AF	6.88

Physical Analysis :	
Residue 45um (%)	2.49
Blaine (m2/kg)	493
Air Content (%)	5.96
Initial Set (mins.)	127
Auto. Exp. (%)	0.06
Sulf. Exp. (%) (prev month)	0.010
Compressive Strength (MPa)	
1 Day	19.42
3 Days	29.86
7 Days	35.07
28 Days (prev month)	41.38

This certifies compliance with C.S.A A3001-08 General use portland-limestone cement (Type GUL)

Alain Peeters
Quality Manager

Mississauga Plant
2391 Lakeshore Road West
Mississauga, Ontario
L5J 1K1

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13-02-2013

CEMENT TEST REPORT

Mississauga Plant

CEMENT TYPE : **HE**

SAMPLE PERIOD : **01-01-2013 - 01-02-2013**

Chemical Analysis (%) :

LOI	2.26
SiO2	19.51
Al2O3	5.28
Fe2O3	2.35
CaO	62.23
MgO	2.41
SO3	4.28
Total Alkali	1.00
Free Lime	1.03
Insol. (prev. month)	0.61

C3S	54.04
C2S	15.17
C3A	10.01
C4AF	7.16

Physical Analysis :

Residue 45um (%)	0.53
Blaine (m2/kg)	531
Air Content (%)	6.47
Initial Set (mins.)	112
Auto. Exp. (%)	0.05
Sulf. Exp. (%) (prev month)	0.014

Compressive Strength (MPa)

1 Day	25.77
3 Days	35.88
7 Days	41.51
28 Days (prev month)	47.85

This certifies compliance with C.S.A A3001-08 High early-strength hydraulic cement (Type 30 High Early Strength Portland).

Alain Peeters
Quality Manager

SET ACCELERATOR

PRODUCT

TARGET® Set Accelerator is a chloride-free, dry powder accelerator designed for use with shotcrete. It is also suitable for use as a set accelerator in other Portland cement products such as concrete mixes and fence post mixes.

USES

- A major use for this product is in accelerated shotcrete for mining, tunneling or rock stabilization operations where rapid set or high early strength are required for structural support.
- Accelerated shotcrete is also used for rapid sealing of water seepage through rock, earth or concrete.
- In situations where rapid installation of a reinforced shotcrete is needed, TARGET steel fiber reinforcement can be included in the mix to provide the required performance, as well as silica fume.
- Production of fast setting concrete using conventional portland cement, for example fence post mix.

ADVANTAGES

- In addition to the advantages of rapid set and high early strength, TARGET Set Accelerator is less caustic and less hazardous to personnel than the Portland cement products to which it is added.
- The dry powder form of this product is ideal for dry-process shotcrete applications and provides added convenience for transportation, storage and application.
- TARGET Set Accelerator gives less reduction in ultimate strength than most other dry powder accelerators and performs more effectively than most accelerators at low temperatures.

PROCEDURES

1. Determine the amount of TARGET Set Accelerator needed to give the required setting time and rate of strength development for the planned application. The temperature during mixing and curing must be considered during the testing because, like most chemical reactions, the degree of acceleration is reduced as the temperature is lowered.
    - In general, the addition of 1% to 5% of TARGET Set Accelerator by weight of cement will provide satisfactory results. The most common addition rate is 3% to 4%. Higher addition rates can be used for applications such as water sealing where very rapid setting is essential, and a slight reduction of the final strength is acceptable.
2. For dry-mix bagged shotcrete applications, it is preferable to premix the shotcrete and the accelerator before adding water. The premixing can be done during batching of the shotcrete, or an additive dispenser can be included in the application equipment.
    - In some cases, on-site additions of set accelerator are undesirable because of conditions such as the lack of suitable dispensing equipment or the absence of adequate quality control. The use of a dry-bagged, premixed, accelerated shotcrete is ideal in such situations. Target Products Ltd manufactures and supplies a wide range of dry-bagged, premixed standard and accelerated shotcretes, with or without silica fume or steel fiber reinforcement. The premixed product is supplied in standard paper

TARGET PRODUCTS LTD

SET ACCELERATOR

bags, or in bulk sacks of up to 1,678 kg (3,700 lb) capacity.

3. For site-batched applications when using damp sand the accelerator must be added to the mixture immediately prior to discharge into the shotcrete gun. Dispensing equipment is available for these applications.

CAUTION

- Before using TARGET Set Accelerator in a Portland cement mix, check that the accelerator is compatible with the cement using ASTM C1117 and/or C1140. Some Portland cements with low C_3A contents do not respond as readily to additions of this accelerator.
- Test mixes should always be made to determine the amount of TARGET Set Accelerator required to give the specified setting time, or to determine the effect of the accelerator on the early and later age strength of the mix. As with all set accelerators, the use of a high level of accelerator to achieve very short setting times can reduce the final strength of the mix.

TYPICAL PROPERTIES OF TARGET SET ACCELERATOR

When added to a standard shotcrete mix with aggregate gradation meeting the requirements of ACI 506 Table 2.2.1, Gradation No.2 shotcrete, TARGET Set Accelerator gives approximately the following properties:

ACCELERATOR ADDED, % by wt. of cement	0		3.5	
SETTING TIME at 21°C (70°F), ASTM C266 Initial Set, minutes Final Set, minutes	 185 220		 3 10	
SETTING TIME at 2°C (35°F), ASTM C266 Initial Set, minutes Final Set, minutes	 >720 >720		 24 33	
COMPRESSIVE STRENGTH of test panels when cured at approximately 16°C (60°F) for 8 hours, then cored and moist cured at 23°C (72°F) :	MPa	psi	MPa	psi
at 10 hours	*	*	14	2030
at 3 days	19	2760	21	3050
at 7 days	37	5365	28	4060
at 28 days	50	7250	39	5660

*Insufficient strength for coring

NOTE: The typical results shown are for shotcrete made with Type 1 (Type 10) Portland cement with a C_3A content of 8.2%. The properties obtained will vary for other cement compositions.

TARGET PRODUCTS LTD

SET ACCELERATOR

PACKAGING

TARGET Set Accelerator is packaged in 22.7 kg (50 lb) plastic pails or plastic bags, or 227 kg (500 lb) open head, plastic lined drums, or ≈850 to 1000kg (1875 to 2200 lb) bulk sacks. Other packaging to suit the requirements of major projects is available on request.

TARGET PRODUCTS LTD

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet meets or exceeds the requirements of the Canadian Controlled Product Regulations (WHMIS)

1. Product and Supplier Identification

Product: **Target Post Set Admixture**
Target Set Accelerator

Product Use: Concrete Related Products

Supplier: **Target Products Ltd,**
1080 Bradner Road
Abbotsford, BC
V4X 1H8
Telephone: 1.604.856.7976
24-Hour Emergency Response Telephone for Transport Emergencies ONLY: +1 (613) 996-6666

2. Composition

Component	Exposure Limits/ACGIH[1]	LD_{50}	LC_{50}
All concentrations below the disclosure requirements of the Hazardous Products Act	Not applicable	Not applicable	Not applicable

1 American Conference of Governmental Industrial Hygienists (ACGIH). Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area.

3. Hazards Identification

Routes of Entry:

Skin Absorption: No
Skin Contact: Yes
Eye Contact: Yes
Ingestion: Yes
Inhalation: Yes

Emergency Overview:

This material is a mild alkaline irritant. Irritation is greater when under moist or wet conditions. See Material Safety Data Sheet for the product used with Set Accelerator before using this product. Inhalation of dusts are irritating to the upper respiratory tract.

Acute Health Effects:

Inhalation:

Mild alkaline irritant! Inhalation of dusts can cause moderate irritation of the mucous membranes and upper respiratory tract. Symptoms may include slight burning sensation and/or coughing.

Skin Contact:

Mild alkaline irritant! Contact may cause temporary, mild irritation of the skin causing redness and itching. Irritation may be worse if skin is moist.

Skin Absorption:

There is no evidence of any component of these products entering the body by this method.

Eye Contact:

Moderate eye irritant, causing burning senstation upon contact with eyes. Irritation is normally reversible within 48 hours.

Ingestion:

Oral toxicity is low, but ingestions may cause irritation of the gastrointestinal tract. Ingestion of large quantities may cause nausea and vomiting. May cause slight burning sensation to the lips, tongue, oral mucosa, upper airway and esophagus.

Chronic Health Effects:

No chronic effects expected. This product is not expected to accumulate in the body.

Medical Conditions Aggravated by Exposure:

Persons with pre-existing skin disorders may be affected by the use of this product.

4. First Aid Measures

Inhalation:

If irritation causes coughing or phlegm, remove to fresh air. Call for medical assistance if coughing doesn't subside.

Skin Contact:

Wash affected area thoroughly with soap and water. If irritation persists, seek medical attention.

Eye Contact:

Check for and remove contact lenses. Immediately and thoroughly flush eyes with large amounts of water for at least 15 minutes, occasionally lifting the lower and upper eyelids. If irritation, pain, swelling, or lacrimation exists, get medical attention as soon as possible.

Ingestion:

If patient is conscious, give one or two glasses of milk or water. ***Do not induce vomiting.*** Do not give anything by mouth to a convulsing or unconscious person. To avoid accidental aspiration if vomiting should occur, have victim lean forward with head down. Get immediate medical attention.

General Comments:

Good personal hygiene is essential. Avoid eating, smoking or drinking in work areas.

5. Fire Fighting Measures

Flammability: No

Flash Point: Not applicable

Autoignition Temperature: Not applicable

Lower Explosive Limit: Not applicable

Upper Explosive Limit: Not applicable

Explosion Data:

Sensitivity to Impact: No
Sensitivity to Static Discharge: No

Hazardous Combustion Products: None known

Conditions to Avoid: None

Extinguishing Media: These materials are not flammable. Use any medium necessary to extinguish surrounding fire. If possible, try to keep uninvolved product dry.

Fire Fighting Instructions: Evacuate area and fight fire from a safe distance or a protected area. Approach fire from upwind. At high temperatures fumes of calcium oxide may evolve. Firefighters must wear self-contained breathing apparatus and full protective clothing.

6. Accidental Release Measures

Personal Protection:

Wear adequate personal protection to prevent inhalation of dusts, and to prevent contact with skin or eyes. See Section 8 for specific recommendations.

Environmental Precautions:

Prevent from spilling into waterways, sewers.

Cleanup Procedures:

Only adequately trained personnel, wearing properly selected personal protective equipment and clothing described in Section 8, should be involved in the spill response and cleanup. Use methods of collection of spilled material that will not generate dusts. If spilled material is uncontaminated, it may be reused. Dispose of contaminated materials according to Section 13.

7. Handling and Storage

Handling Procedures:

This material is mildly corrosive. Keep containers closed when not being used and avoid contact with water until use. Follow safe work procedures and wear the appropriate personal protective equipment specified in Section 8. The workers must be instructed and trained in the safe work procedures.

Storage:

Store away from incompatible materials such as strong mineral acids and water.

8. Exposure Controls, Personal Protection

Engineering Controls:

Ensure that sufficient ventilation is available to keep vapours as low as possible.

Respiratory Protection:

Under recommended directions for use, respirators are not necessary

Skin Protection:

Wear clothing to prevent contact with skin.

Eye and Face Protection:

Wear safety glasses to prevent contact with eyes and make immediately available appropriate emergency eyewashing equipment (e.g. portable or plumbed) capable of flushing the eyes for at least 15 minutes.

9. Physical and Chemical Properties

	Physical State	Appearance	Odour	Odour Threshold	pH (supernatant)	Vapour Pressure	Vapour Density (Air=1)	Solubility in water	Melting Point	Boiling Point	Specific Gravity (Water=1)	Coefficient of water/oil Distribution	Evaporation Rate (Butyl Acetate=1)
Set Accelerator	Solid	White to off-white powder	None	None	10-12	N. App	N. App	?		N. App	2.7-2.8	N. App	N. App
Post Set Admixture	Solid	Light brown to beige powder	Soap odour	None	10-12	N. App	N. App	?	No data	N. App	2.7 – 2.8	N. App	N. App

10. Stability and Reactivity

Chemical Stability: This product is stable.

Hazardous Polymerization: Will not occur.

Incompatibility: Yes. Reacts with strong mineral acids.

Reactivity: Yes. Reacts with water forming polymerized silicates.

Hazardous Decomposition Products: None

11. Toxicological Information

Effects of Acute Exposure: See Section 3
Effects of Chronic Exposure: See Section 3
Irritancy: Yes. See Section 3.
Skin Sensitization: None reported
Respiratory Sensitization: None reported
Neurotoxicity: No
Carcinogenicity: No
Embryotoxicity: No
Teratogenicity: No
Reproductive Toxicity: No
Mutagenicity: No
Synergistic Products: None reported

12. Ecological Information

Environmental Toxicity: No Information found.

Biodegradability: No information found.

13. Disposal Considerations

Review federal, provincial or state, and local government requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. Disposal by controlled incineration may be acceptable.

14. Transport Information

Canadian Transportation of Dangerous Goods Regulations: Not regulated

International Air Transport Association (IATA): Not regulated

International Maritime Organization (IMO): Not regulated

15. Regulatory Information

CANADIAN FEDERAL REGULATIONS:

CEPA, DOMESTIC SUBSTANCES LIST: Listed

WHMIS CLASSIFICATION: D2B

16. Other Information

Original Preparation Date: June 23, 2004

Prepared by: Kel-Ex Agencies Ltd., P.O. Box 52201, Lynnmour RPO, North Vancouver, BC, Canada, V7J 3V5

Disclaimer: This Material Safety Data Sheet was prepared in accordance with criteria and requirements of the Hazardous Products Act and the Controlled Products Regulations using information provided by the manufacturer and other sources including CCINFO (Chemical Information published by the Canadian Centre for Occupational Health and Safety). The information in the Material Safety Data Sheet is offered for your consideration and guidance when exposed to this product. TARGET PRODUCTS LTD. expressly disclaims all expressed or implied warranties and assumes no responsibilities for the accuracy or completeness of the data contained herein. The data in this MSDS does not apply to use with any other product or in any other process.

Revisions: Reviewed and re-issued July 20, 2007

MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION AND USE	File Number : 02-A Page 1 / 2
Material Name : **SILICA FUME**	Material Use: **Cement – insulation**
Manufacturer's Name : **Silicium Bécancour inc.**	Chemical Family : **Amorphous Silica**
Street Address : **6500, Yvon-Trudeau**	Chemical Name : **Silicon dioxide**
City : **Bécancour** Code postal : **G9H 2V8**	CAS UN Numbers : **69012-64-2**
Province: **Québec** Pays : **Canada**	Chemical Formula : **SiO_2**
Emergency Telephone No. : **(819) 294-6249**	Trade Name and Synonyms : **Silica fumes, amorphous silica**

SECTION 2 - HAZARDOUS INGREDIENTS OF MATERIAL

Ingredients	Concentration %	Exposure limits	LD_{50}	LC_{50}
SiO_2 (amorphous)	93,0-96,5%	2 mg/m^3 of respirable dust (< 5um)	Unknown	Unknown

SECTION 3 - PHYSICAL DATA FOR MATERIAL

Physical state gas ☐ liq.☐ sol. ☒	Odour and Appearance : **Inodorous, light grey**	Odour Threshold : **N/A**	Specific Gravity : **SiO_2 = 2,2 g/cm^3**
Vapour Pressure : **N/A**	Vapour Density : **N/A**	Evaporation Rate : **N/A**	Boiling Point: **N/A**
Freezing Point : **N/A**	Solubility in Water : **Insoluble**	pH **:** **N/A**	Coefficientof water / oil distribution: **N/A**

SECTION 4 - FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes ☐ No ☒ Conditions :

Means of Extinction : **Does not burn / Not combustible**

Special Procedures : **N/A**

Flashpoint and Method: **N/A**	Upper explosion limit : **N/A**	Lower explosion limit : **N/A**
Auto Ignition Temperature : **N/A**	Rate of Burning : **N/A**	Hazardous Combustion Products : **N/A**
Explosion Data : **N/A**	Explosive Power : **N/A**	Sensitivity to Static Discharge : **N/A**

SECTION 5 - REACTIVITY DATA

Chemical Stability Yes ☒ No ☐ If no, conditions :

Incompatibility to other substances Yes ☐ No ☐ **Hydrofluoric acid (HF) and nitric acid (HNO_3)**

Reactivity : **Can must be used in presence of oxidants and acids like hydrofluoric acid**

Hazardous Decomposition Products : **A reaction with hydrofluoric acid (HF) or nitric acid (HNO_3) leads to the formation of toxic gases such as silicon tetrafluoride (SiF_4) or nitrous gases (NO_x). Heating above 1000°C can results in the formation of crystalline SiO_2 – modifications as cristabalite/tridymite which may cause pulmonary fibrosis (silicosis). In the presence of water, there may be release of hydrogen.**

MATERIAL SAFETY DATA SHEET

SECTION 6 - TOXICOLOGICAL PROPERTIES — SILICA FUME — Page 2 / 2

Route of Entry: ☒ Skin Contact ☐ Skin Absorption ☒ Eye Contact ☐ Inhalation Acute ☒ Inhalation Chronic ☐ Ingestion

Effects of Acute Exposure to Product: **Skin and eyes irritation of breathing tracks (upper).**

Effects of Chronic Exposure to Product **: Pneumoconiosis possible (without pulmonary lesion). Pneumoconiosis may depend on the size of the particles.**

LD_{50} of Product (Specify Species and Route) : **Not available**	Irritancy of Product **:** **Not available**	Exposure limits of Product : **Not available**
LC_{50} of Product (Specify Species) : **Not available**	Sensitization to Product : **Not available**	Synergistic materials : **Not available**

☐ Carcinogenicity ☐ Reproductive effects ☐ Teratogenicity ☐ Mutagenicity

SECTION 7 - PREVENTIVE MEASURES

Personal Protective Equipment :

Gloves : **Any gloves**	Respiratory : **Half – mask dustproof**	Eye : **Safety glasses**	Footwear **: N/A**
Clothing : **Regular working clothes**	Other :		

Engineering Controls : **Natural ventilation**

Leak and Spill Procedure: **No special procedure**

Waste Disposal: **As per municipal, provincial and federal laws**

Handling Procedures and Equipment : **Use containers and method that will prevent spreading of material on the floor.**

Storage Requirements : **Store in dry and ventilated area**

Special Shipping Information : **None**

SECTION 8 - FIRST AID MEASURES

Skin: **Wash with water**

Eye : **Rinse thoroughly with water. If irritation persists, see a doctor.**

Inhalation: **Move to a ventilated area. For severe irritation see a doctor.**

Ingestion: **Not available**

General Advice :

SECTION 9 - PREPARATION DATE OF M.S.D.S.

Additional Information :

Sources Used : **Canadian standard CSA-A23,5-M86, CSST of the province of Quebec TLV ACGIH, NIOSH**

Prepared by: Daniel Ouimet **Safety Coordinator**	Phone number : **(819) 294-6000 ext. 264**	Date : July 8th, 2009

Silicium Bécancour inc.
Bécancour Silicon Inc.

SILICA FUME TEST REPORT

Analysis by:	Bécancour Silicon Plant Lab
Sample from:	Bécancour Silicon Plant
Average Analysis:	Jan-01-2008 to Jan-31-2008

Chemical Analysis

Silicon Dioxide (SiO_2)	95.9%
Sulphur oxide (SO_3)	0.20%
Chlorine (Cl^-)	0.08%
Potassium Oxide (K_2O)	0.59%
Sodium Oxide (Na_2O)	0.14%
Moisture Content	0.7%
Loss on Ignition	1.7%
pH (10% sol. at 24°C)	7.5

Physical Analysis

Fineness Retained on 45 µm (No. 325 Sieve)	2.0%
Autoclave Expansion	-0.0950
Tendency to entrap air	No visible foam

Our Silica Fume meets Chemical and Physical Requirements for Cementing Materials and Blended Supplementary Cementing Materials of CAN/CSA – A3001-03 (December 2005) for type SF.

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