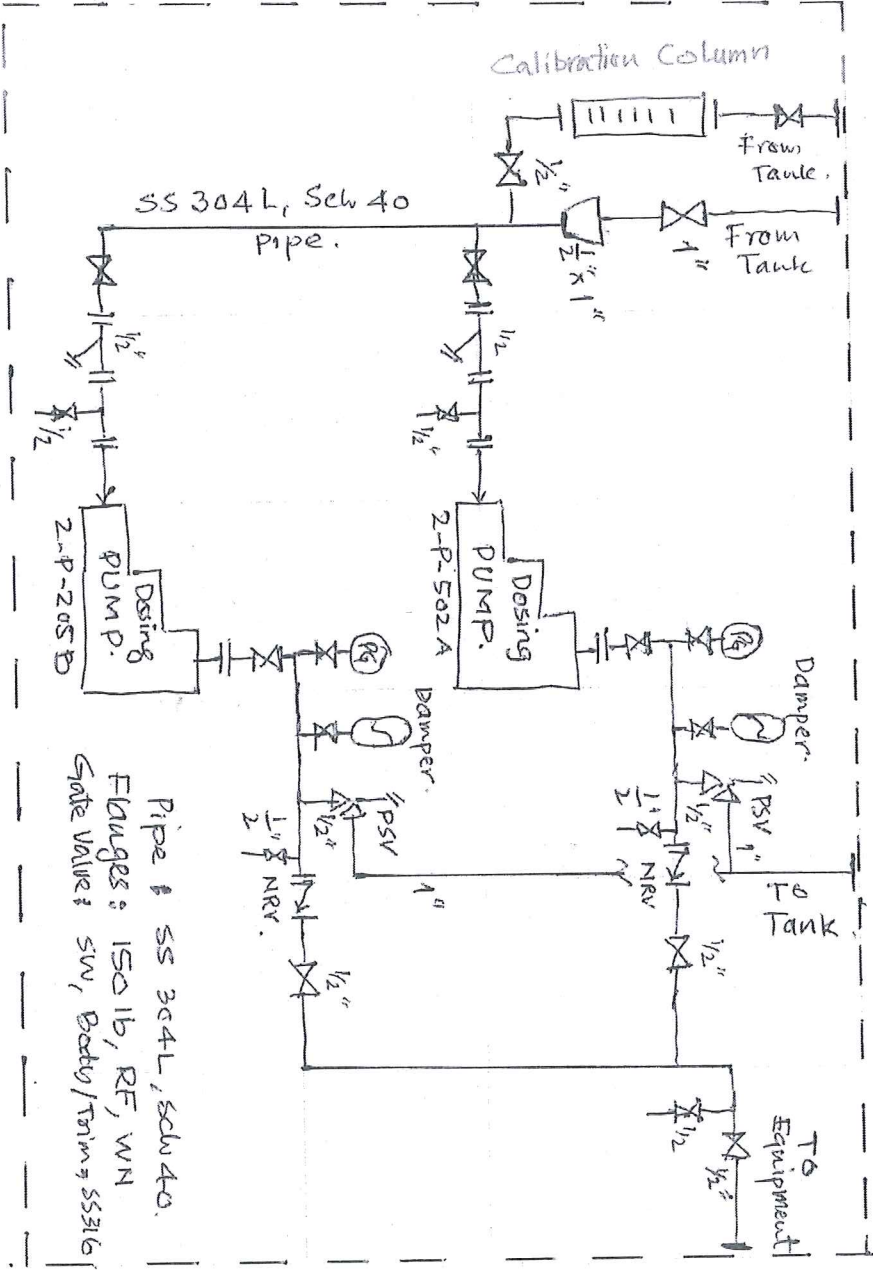
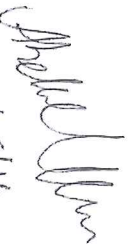


# Urea Product Anti-Caking Chemical Dosing System.



Pipe # SS 304L, Sch 40.  
 Flanges: ISO 1b, RF, WN  
 Gate Valve: SW, Body/Trim = SS316

Le. 18/01/2016  
 02/05/2016

  
 02/05/16

**Specifcatrion Sheet (Level Guage)**

1	Tag number	Level guage for anti-caking Feed Tank & Dosing Tank
2	Area	Non Hazardous
3	Type	Transparent Level Gauge
4	Fluid	Anti-caking Solution (55-65 %)
5	Density	1.033 Kg/lit
6	Corrosive components	No
7	Suspended Solids	No
8	Temperature C	Ambient
9	Pressure kg/cm2	Atmospheric
10	Quantity	2
<b>Connections</b>		
11	Flanged	Yes
12	Size	1/2 "
<b>Material</b>		
13	Body	1P1J
14	Gaskets	PTFE
15	Valves	1P1J
16	Length	1474mm
<b>Valves</b>		
17	Drain	1/2 " ball valve
18	Vent	1/2 " ball valve
19	Manufacturer	
20	Model	
21	Purchase Order Number	
22	Price	
23	Serial Number	
1) Vendor to furnish catalogue with Bid.		
Prepared	ARn	
Approved	SA	<i>[Signature]</i>
<b>TECHNICAL SPECIFICATION</b> Level guage for Anti-Caking Solution tanks		

Specificatrion Sheet (Level transmitter)		
1	Tag number	2-LT-501A/B
2	Area Calssification	Non Hazardous
3	Service fluid	Anti-Caking Solution (55-65 %)
4	Quantity	2
5	Density	1.033 Kg/lit
6	Corrosive components	No
7	Suspended Solids	No
8	Operating Temperature	50 C
9	Design temperature	100 C
10	Operating pressure	Atm
11	Design pressure	0.015 kg/cm2-g
12	Location of installation	Bottom of vessel
13	Element Type	Diaphragm
14	class	IP55
15	Material: Body / Element	SS304 / By MFR
16	Range	0-1.7 metres
17	Accuracy	+/-0.5%
18	Type	Flanged
19	Mounting	1" Tank Nozzle
20	IP Class	55
21	Supply	24 V
22	Output signal	4-20 mA
23	Accessories	Local Indicator
24	Manufacturer	
25	Model	
26	Purchase Order Number	
27	Price	
28	Serial Number	
1) Vendor to furnish catalogue with Bid.		
Prepared By:	ARn	<b>TECHNICAL SPECIFICATION</b> Level transmitter for Anti-Caking Solution Tank
Reviewed By:	SA	

INSTRUMENT SPECIFICATION								
Pressure Gauge								
GENERAL	1	Tag No.				2-PG-501 A/B		
	2	Service				Anti-Caking Solution (55-65 %)		
		Quantity				2		
	3	Location				Field		
	4	Area Classification				Non-Hazardous		
	5	Mounting				Local		
	6	Certification				*		
	7	Line number/Equipment Number				*		
	8	Line specification				1/2" (1P1J)		
PROCESS CONDITIONS	9	Process Fluid				Uresoft Solution (55-65 %)		
	10	Temperature, °C	Min	Oper.	Max	35	50	60
	11	Density, kg/lit				1.033		
DESIGN	12	Type				Diaphragm type		
	13	Range				0-10		
	14	Least Count				0.5		
	15	Accuracy				+ / - 1%		
	16	Tapping Nozzle size				1/2"		
	17	Casing Material				Vendor to specify		
PURCHASE	18	Manufacturer						
	19	Model						
	20	Purchase Order Number						
	21	Serial Number						
	22	Price	Item Number					
Notes: 1. * Marked items will be provided by vendor.								
2. Vendor to furnish catalogue with bid.								
Prepared By:	ARN			Rev	INSTRUMENT SPECIFICATION Pressure Gauge			
Approved By:	SA			0				
	<i>SA</i>							

TECHNICAL SPECIFICATION Anti-Caking Dosing Pumps					
GENERAL	1	Tag No.	2-P-502 A/B		
		Quantity	2		
	2	Service	Anti-Caking Solution (55-65 %)		
	3	Type	Specially designed anti-caking Dosing Pump		
	4	Driver	Electric motor (400 V, 50 Hz, 3 ph)		
PROCESS CONDITIONS	5	Area Classification	Non hazardous		
	6		min	Operating	
	7	Density kg/lit	1.033	1.033	max
	8	Pressure barg	2	2.5	4
	9	Suction Pressure bar.a	1	1	1
	10	Suction Temp. C	35	50	80
	11	Required capacity, lit/hr	20	52	80
	12	Suction Head (m)	0.1 - 1.5		
	13	Viscosity at 25C (cSt)	200 max		
	14	Fluid nature	Non Corrosive		
	15	Efficiency %	*		
	16	Power Required, kW	*		
	17	Installation	Outdoor		
	18	Motor Speed, rpm	*		
	19	Motor rating, kW	*		
	MATERIAL OF CONSTRUCTION	20	Type	Diaphragm	
		21	Liquid End	PVDF	
	PURCHASE	22	Manufacturer		
		23	Model		
24		Purchase Order Number			
25		Price			
26		Serial Number			
<b>Notes:</b> 1. * Marked Items will be provided by Vendor. 2. Vendor to furnish catalogue with bid. 3. Vendors to quote two years operation & commissioning spares along with offer. (with price break up) 4. Vendor to provide operating range "min/max" = extreme values 5. Pump will be used as metering pump for anti-caking dosing. 6. 7. Refer attached nozzle datasheet which will be used at outlet of pump for spray. 8. Pumps should be skid mounted with Piping material compatible with anti-caking solution (55-65%). Skid should include all accessories for selected pump operation. (Strainers, NRV, Pulsation dampers, Pressure relief valves, Pressure gauges, Calibration columns and drain valves.)					
Prepared By:	ARn	TECHNICAL SPECIFICATION Anti-Caking Solution Dosing Pumps			
Approved By:	SA				



Plant	Urea Plant	PUMP Description	Centrifugal Anti-Caking solution Pump
		Nos reqd	1
<b>SCHEME</b> Project-1 Uresoft Coating Pump for Urea Product			
<b>OTHER LOSSES</b>			
<b>SUCTION</b>		<b>DISCHARGE</b>	
FE / Orifice	0.0	Other1	0.01
Strainer	0.00	Other2	0.0
Nozzle	0.02	Total	0.03 Bar
Exchangers	0.0	Filter	0.0
FCV	0.0	Margin	0.2
FT	0.0	Total	0.2 Bar
<b>FLUID FLOW AND PROPERTY</b>			
Fluid		Phosphate Soln	
Flow	M3/hr	5.00	
Temp	°C	50	
Density	kg/m3	1033	
Viscosity	cP	200	
Vap Press	Bara	0.10	
<b>SUCTION SIDE</b>			
Suc vessel press	BarA	1.00	Velocity in suction line 6.7 m/s
Min llq level above Pump center line	mt	0.00	
Line length	mt	1.00	
Suc line (ID)	in	2.00	
Line loss	Bar	0.003	
Other loss (Inst, str, equip etc)		0.0	
Min suc press	BarA	0.97	
NPSH A	mt	8.6	
85% / NPSHA -0.6 mt	mt	7.3	
NPSH A for datasheet	mt	7.3	
<b>DISCHARGE SIDE</b>			
Terminal pressure	Bara	1.0	Velocity in Discharge line 2.8 m/s
Max static ht above pump center line	mt	14.9	
Line length	mt	20.0	
Dis line (ID)	in	1.00	
Line loss (x chk with simulator)	Bar	1.80	
Other loss (Inst, Nozz, CV, equip etc)	Bar	0.20	
Dis Press reqd	Bara	4.5	
<b>PUMP CALCULATION</b>			
Calculated difference pressure	Bar	3.54	
Calculated difference head	m	34.9	
Calculated Brake horse power (30% eff)	kW	1.67	
Calculated power (90% motor eff)		1.86	
<b>REMARKS</b>			
Rev	Date	Prepared	Checked
2			
1			
0			
			Approved

Specification Sheet (Strainer for Anti-Caking Dosing Pumps)		
1	Tag number	Strainers for Anti-Caking Dosing pumps
2	Type	Y-type
3	Quantity	2
4	Fluid	Anti-Caking Solution (55-65 %)
5	Density	1.033 kg/lit
6	Corrosive components	No
7	Suspended Solids	No
8	Pump Suction Temperature C	Ambient (Max 60 C)
9	Pressure kg/cm <sup>2</sup>	Atmospheric
10	Flow	60 L/hr
11	Pump head	15 m
12	<b>Connections</b>	
13	Flanged	Yes
14	Size	1/2 " (1P1J)
15	<b>Material</b>	
16	Body	1P1J
17	Mesh	1P1J
18	mesh	<del>2.0</del>
19	Capacity	Vendor to specify
20	Manufacturer	
21	Model	
22	Purchase Order Number	
23	Price	
24	Serial Number	
1) Vendor to furnish catalogue with Bld.		
:		
Prepared By:	ARn	<b>TECHNICAL SPECIFICATION</b> Strainer for Anti-Caking Dosing Pumps
Approved By:	SA	