COPIED. 4-15-01

HY 01 # 1/3

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2001

Serial # 9614

Formazin Calibration: Date 10-4-00 By C. FENTON

Next Formazin calibration (3 months) due by 1-4-~~00~~ 01

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 9614 check (once a month): Date 10-4-00
@ Calibration
0-10 5.18 NTU
0-100 51.7 NTU
0-1000 622 NTU

Gelex Standards # 9614 check (once a month): Date 11-2-00

0-10	5.31 NTU	previous value	5.18
0-100	52.5 NTU	previous value	51.7
0-1000	628 NTU	previous value	622

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # _____ check (once a month): Date 12-2-00

0-10	5.38 NTU	previous value	5.31
0-100	53.5 NTU	previous value	52.5
0-1000	626 NTU	previous value	628

acceptable ✓ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-00

COPIED 4-15-01

HY 01 #2/3

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2001 ~~2000~~

Serial # 9614

Formazin Calibration: Date 1-4-01 By C. FENTON

Next Formazin calibration (3 months) due by 4-4-01

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule ~~catalog # 26605-01~~
Acquired July 1999, expires March 2001

Gelex Standards # 9614 check (once a month): Date 1-4-01
@ Calibration
0-10 5.06 NTU
0-100 51.0 NTU
0-1000 615 NTU

Gelex Standards # 9614 check (once a month): Date 2-5-01

0-10	5.04 NTU	previous value	5.06
0-100	50.7 NTU	previous value	51.0
0-1000	614 NTU	previous value	615

acceptable V (+/- 5.0%) recalibrate _____

Gelex Standards # _____ check (once a month): Date 3-4-01

0-10	4.88 NTU	previous value	5.04
0-100	49.5 NTU	previous value	50.7
0-1000	608 NTU	previous value	614

acceptable _____ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

HY 01 #3/3

SunnyBrae Sediment Lab
HACH 2100P Portable Turbidimeter
Quarterly Calibration Sheet

HY 01

Serial # 9614

Formazin Calibration: Date 4-11-01 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired February 2001 Expires Sept. 2002

Next Formazin calibration (3 months) due by 7-11-01

Gelex Standards # 9614 check (once a month): Date 4-11-01
@ Calibration
0-10 5.02 NTU
0-100 52.1 NTU
0-1000 601 NTU

acceptable _____ (+/- 5.0%) recalibrate _____

Gelex Standards #_____ check (once a month): Date _____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

Gelex Standards #_____ check (once a month): Date _____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

00 #4/4

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 9614

Formazin Calibration: Date 6-8-00 By C. FENTON

Next Formazin calibration (3 months) due by 9-8-00

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 9614 check (once a month): Date 6-8-00
@ Calibration
0-10 5.20 NTU
0-100 52.0 NTU
0-1000 616.0 NTU

Gelex Standards # 9614 check (once a month): Date 7-7-00

0-10 5.19 NTU previous value 5.20
0-100 52.1 NTU previous value 52.0
0-1000 618.0 NTU previous value 616.0

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #_____ check (once a month): Date_____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

00 #3/4

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 9614

Formazin Calibration: Date 3-8-00 By C. FENTON

Next Formazin calibration (3 months) due by 6-8-00

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 9614 check (once a month): Date 3-8-00
@ Calibration
0-10 5.13 NTU
0-100 51.7 NTU
0-1000 611 NTU

Gelex Standards # 9614 check (once a month): Date 4-15-00 BY C.F.

0-10	5.18 NTU	previous value	5.13
0-100	52.1 NTU	previous value	51.7
0-1000	613 NTU	previous value	611

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # 9614 check (once a month): Date 5-16-00

0-10	5.12 NTU	previous value	5.18
0-100	51.3 NTU	previous value	52.1
0-1000	609 NTU	previous value	613

acceptable ✓ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

00 #2/4

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 9614

Formazin Calibration: Date 12-25-99 By C. FENTON

Next Formazin calibration (3 months) due by 3-25-2000

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #9614 check (once a month): Date 12-25-99
@ Calibration
0-10 5.14 NTU
0-100 51.7 NTU
0-1000 613 NTU

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #9614 check (once a month): Date 2-1-00

0-10 4.98 NTU previous value 5.14 By George
0-100 52.0 NTU previous value 51.7
0-1000 610 NTU previous value 613

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #9614 check (once a month): Date 2-23-00

0-10 4.93 NTU previous value 4.98 By George
0-100 50.0 NTU previous value 52.0
0-1000 608 NTU previous value ~~608~~ 610 CF

acceptable ✓ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

HY 00 #1/4

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 9614

Formazin Calibration: Date 10-3-99 By C. FENTON

Next Formazin calibration (3 months) due by ~~FEB~~ 1-3-2000

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #9614 check (once a month): Date 10-3-99

@ Calibration			
0-10	5.37 NTU	5.24	
0-100	52.7 NTU	52.7	
0-1000	614 NTU	619	

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date 10-29-99

0-10	5.46 NTU	previous value 5.37	By C.F.
0-100	54.3 NTU	previous value 52.7	
0-1000	623 NTU	previous value 614	

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date 11-28-99

0-10	5.52 NTU	previous value 5.46
0-100	54.8 NTU	previous value 54.3
0-1000	626 NTU	previous value 623

acceptable ✓ (+/- 5.0%) recalibrate _____

COPIED 4-15-01 HY 99 #4/4

Calibration Sheet
Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 7-5-99 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05
A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Kit aquired July 1999, expires March 2001

Next Formazin calibration (3 months) due by 10-5-99

Gelex Standards check (once a month):
Date 7-5-99

0-10	5.02 NTU	previous value	
0-100	52.6 NTU	previous value	
0-1000	619 NTU	previous value	
w/IN 5% acceptable	✓	recalibrate	

Gelex Standards check (once a month):
Date 8-5-99

0-10	5.24 NTU	previous value	5.22
0-100	52.7 NTU	previous value	52.6
0-1000	619 NTU	previous value	619
acceptable	✓	recalibrate	

Gelex Standards check (once a month):
Date 9-4-99

0-10	5.05 NTU	previous value	5.24
0-100	51.2 NTU	previous value	52.7
0-1000	614 NTU	previous value	619
acceptable	✓	recalibrate	

COPIED 4-15-01

MY 99 #3/4

Calibration Sheet
for Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 4-6-99 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01 Lot # 7283 Exp JULY 99
B. 20 NTU ampule: catalog # 26848-01 Lot # 7290 Expires July 99
C. 100 NTU ampule: catalog # 26849-01 Lot 7307 Expires OCT 99
D. 800 NTU ampule catalog # 26605-01 Lot # 7297 Expires AUG 99

Next Formazin calibration (3 months) due by 7-6-99

WITH
Gelex Standards check (once a month):
Date 4-6-99

0-10 4.99 NTU previous value _____

0-100 53.3 NTU previous value _____

0-1000 625 NTU previous value _____

acceptable ✓ recalibrate _____

WITHIN 5% OF PREVIOUS VALUE
Gelex Standards check (once a month):
Date 5-11-99

0-10 5.04 NTU previous value 4.99

0-100 53.8 NTU previous value 53.3

0-1000 630 NTU previous value 625

acceptable ✓ recalibrate _____

WITHIN 5% OF PREVIOUS VALUE
Gelex Standards check (once a month):
Date 6-10-99

0-10 5.06 NTU previous value 5.04

0-100 53.8 NTU previous value 53.8

0-1000 625 NTU previous value 630

acceptable ✓ recalibrate _____

COPIED 4-15-01

HY 99 #2/4

Calibration Sheet
for Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 1-8-99 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05

NEW ONES BY JUNE 99

A. < 0.01 NTU ampule: catalog # 26487-01 Lot # 7283 Exp JULY 99 ✓
B. 20 NTU ampule: catalog # 26848-01 Lot # 7290 Expires July 99 ✓
C. 100 NTU ampule: catalog # 26849-01 Lot 7307 Expires OCT 99 ✓
D. 800 NTU ampule catalog # 26605-01 Lot # 7297 Expires AUG 99 ✓

Next Formazin calibration (3 months) due by 4-8-99

WITHIN 5% OF PREVIOUS VALUE

Gelex Standards check (once a month):

Date 1-8-99

0-10	4.99 NTU	previous value	4.98
0-100	53.2 NTU	previous value	52.8
0-1000	632 NTU	previous value	623
acceptable	✓	recalibrate	~~✓~~

WITHIN 5% OF PREVIOUS VALUE

Gelex Standards check (once a month):

Date 2-5-99

0-10	5.00 NTU	previous value	4.99
0-100	53.4 NTU	previous value	53.2
0-1000	630 NTU	previous value	632
acceptable	✓	recalibrate	

Gelex Standards check (once a month):

Date 3-5-99

0-10	5.01 NTU	previous value	5.00
0-100	539 NTU	previous value	53.4
0-1000	628 NTU	previous value	630
acceptable	✓	recalibrate	

COPIED 4-15-01

HY 99 #1/4

Calibration Sheet
for Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 10-9-98 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01 Lot # 7283 Exp JULY 99
B. 20 NTU ampule: catalog # 26848-01 Lot # 7290 Expires July 99
C. 100 NTU ampule: catalog # 26849-01 Lot 7307 Expires OCT 99
D. 800 NTU ampule catalog # 26605-01 Lot # 7297 Expires AUG 99

Next Formazin calibration (3 months) due by 1-9-99

Gelex Standards check (once a month):
Date 10-9-98

0-10 5.02, 5.01 NTU previous value 5.18

0-100 53.7, 53.7 NTU previous value 54.0

0-1000 626, 626 NTU previous value 622

acceptable ✓ recalibrate _____

WITHIN 5% OF PREVIOUS VALUE

Gelex Standards check (once a month):
Date 11-7-98

0-10 5.08 NTU previous value 5.02

0-100 53.6 NTU previous value 53.7

0-1000 629 NTU previous value 626

acceptable ✓ recalibrate _____

WITHIN 5% OF PREVIOUS VALUE

Gelex Standards check (once a month):
Date 12-7-98

0-10 41.98 NTU previous value 5.08 0.254

0-100 52.8 NTU previous value 53.6 2.68

0-1000 623 NTU previous value 629 31.45

acceptable ✓ recalibrate _____

xxpxxxxxxpppxx COPIED 4-15-01 HY 98 #1/21

Calibration Schedule
for
Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 1-25-98 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05
A. < 0.01 NTU ampule catalog # 26847-01 Lot #7283 exp. JULY 99
B. 20 NTU ampule catalog # 26848-01 Lot # 7290 expires JULY 99
C. 100 NTU ampule catalog #26849-01 Lot # 7307 expires OCT 99
D. 800 NTU ampule catalog #26605-01 Lot # 7297 expires AUG 99

next formazin calibration (3 months) due by 4-25-98

Gelex Standards : Date 1-25-98

		BEFORE	AFTER
0 - 10 4.98	NTU	5.35	4.98
0 - 100 52.3	NTU	54.8	
0 - 1000 615	NTU	611	

use V mark on cell
can't orient unless had empty cell first

Gelex Standards: Date 2/23/98

0 - 10 5.04	NTU	previous value	4.98
0 - 100 53.1	NTU	previous value	52.3
0 - 1000 616	NTU	previous value	615

acceptable ✓ recalibrate _____

Gelex Standards: Date 3/20/98

0 - 10 5.01	NTU	previous value	5.04
0 - 100 52.5	NTU	previous value	53.1
0 - 1000 622	NTU	previous value	616

acceptable ✓ recalibrate _____

use sig averaging?
Range Selection?
what's more accurate

COPIED 4-15-01

98 #212

Calibration Schedule
for
Hach 2100P Portable Turbidimeter
Serial # 960100009614

Formazin Calibration: Date 4-24-98 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05
A. < 0.01 NTU ampule catalog # 26847-01 Lot #7283 exp. JULY 99
B. 20 NTU ampule catalog # 26848-01 Lot # 7290 expires JULY 99
C. 100 NTU ampule catalog #26849-01 Lot # 7307 expires OCT 99
D. 800 NTU ampule catalog #26605-01 Lot # 7297 expires AUG 99

next formazin calibration (3 months) due by 7-24-98

Gelex Standards : Date 4-24-98

0 - 10 5.24 NTU

0 - 100 54.3 NTU

0 - 1000 624 NTU

Gelex Standards: Date _____

0 - 10 _____ NTU previous value _____

0 - 100 _____ NTU previous value _____

0 - 1000 _____ NTU previous value _____

acceptable ____ recalibrate _____

Gelex Standards: Date _____

0 - 10 _____ NTU previous value _____

0 - 100 _____ NTU previous value _____

0 - 1000 _____ NTU previous value _____

acceptable ____ recalibrate _____

COPIED 4-15-01

HY 01 - #1

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2001

Serial # 22441

Formazin Calibration: Date 10-4-00 By C. FENTON

Next Formazin calibration (3 months) due by 1-4-00

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22441 check (once a month): Date 10-4-00
@ Calibration
0-10 5.06 NTU
0-100 49.0 NTU
0-1000 501 NTU

Gelex Standards # 22441 check (once a month): Date 11-16-00

0-10 5.28 NTU previous value 5.06
0-100 52.3 NTU previous value 49.0 *
0-1000 512 NTU previous value ~~510~~ 501

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # _____ check (once a month): Date _____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-00

COPIED 4-15-01;

HY 01 #2

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 01

Serial # 22441

Formazin Calibration: Date 1-13-01 By C. FENTON

Next Formazin calibration (3 months) due by 4-13-01

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22441 check (once a month): Date 1-13-01
@ Calibration BY C.F.
0-10 5.00 NTU
0-100 49.1 NTU
0-1000 503 NTU

Gelex Standards # 22441 check (once a month): Date 2-9-01
BY CF
0-10 5.06 NTU previous value 5.00
0-100 49.4 NTU previous value 49.1
0-1000 502 NTU previous value 503

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #_____ check (once a month): Date_____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-00

COPIED 4-15-01

HY 00 #1

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22441

Formazin Calibration: Date 9-29-99 By C. FENTON

Next Formazin calibration (3 months) due by 12-29-99

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #22441 check (once a month): Date ~~10~~ 9 c.f. - 29 - 99
@ Calibration
0-10 5.22 NTU
0-100 50.0 NTU
0-1000 497 NTU

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #22441 check (once a month): Date 10-29-99

0-10 5.20 NTU previous value 5.22
0-100 50.1 NTU previous value 50.0
0-1000 498 NTU previous value 497

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date _____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

HY 00 #2

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22441

Formazin Calibration: Date 12-29-99 By C. FENTON

Next Formazin calibration (3 months) due by 3-29-99

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22441 check (once a month): Date 12-29-99
@ Calibration
0-10 5.11 NTU
0-100 49.8 NTU
0-1000 495 NTU

Gelex Standards # 22441 check (once a month): Date 1-28-2000

0-10	5.38 NTU	previous value	5.11
0-100	52.1 NTU	previous value	49.8
0-1000	503 NTU	previous value	~~503~~ 495

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # 22441 check (once a month): Date 2-28-2000 By C.F.

0-10	5.23 NTU	previous value	5.38
0-100	51.4 NTU	previous value	52.1
0-1000	501 NTU	previous value	503

acceptable ✓ (+/- 5.0%) recalibrate _____

01 #1/1

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2001

Serial # 22431

Formazin Calibration: Date 10-4-00 By C. FENTON

Next Formazin calibration (3 months) due by 1-4-00

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22431 check (once a month): Date 10-4-00
@ Calibration
0-10 5.14 NTU
0-100 51.5 NTU
0-1000 506 NTU

Gelex Standards #_____ check (once a month): Date_____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____(+/- 5.0%) recalibrate _____

Gelex Standards #_____ check (once a month): Date_____

0-10 _____ NTU previous value _____
0-100 _____ NTU previous value _____
0-1000 _____ NTU previous value _____

acceptable _____(+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-00

Jesse then George
01

00 #113

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22431

Formazin Calibration: Date 9-29-99 By C. FENTON

Next Formazin calibration (3 months) due by 12-29-~~99~~ 00

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #22431 check (once a month): Date 9-29-99
@ Calibration
0-10 5.21 NTU
0-100 51.2 NTU
0-1000 506 NTU

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date 10-29-99

0-10 5.2 NTU previous value 5.21
0-100 51.1 NTU previous value 51.2
0-1000 507 NTU previous value 506

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #22431 check (once a month): Date 11-28-99

0-10 5.3 NTU previous value 5.2
0-100 52.0 NTU previous value 51.1
0-1000 509 NTU previous value 507

acceptable _____ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-99

COPIED 4-15-01 C.F.

00 #2/3

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22431 O.F.

Formazin Calibration: Date 1-4-~~99~~ 00 By C. FENTON

Next Formazin calibration (3 months) due by 4-4-~~99~~ 00 O.F.

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22431 check (once a month): Date 1-4-00

@ Calibration
0-10 5.19 NTU
0-100 51.3 NTU
0-1000 501 NTU

Gelex Standards # 22431 check (once a month): Date 2-4-00

0-10	4.98 NTU	previous value	5.19
0-100	50.1 NTU	previous value	51.3
0-1000	508 NTU	previous value	501

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # 22431 check (once a month): Date 3-1-00 BY J.N.

0-10	5.29 NTU	previous value	4.98
0-100	51.4 NTU	previous value	50.1
0-1000	506 NTU	previous value	508

acceptable _____ (+/- 5.0%) recalibrate x ASAP

CalibrationTurbidimeter/word98/cf/HY2000

COPIED 4-15-01

00#313

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22431

Formazin Calibration: Date 3-12-00 By C. FENTON

Next Formazin calibration (3 months) due by 6-12-00

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22431 check (once a month): Date 3-12-00
@ Calibration
0-10 5.02 NTU
0-100 50.3 NTU
0-1000 499 NTU

Gelex Standards # 22431 check (once a month): Date 4-12-00

0-10 5.15 NTU previous value 5.02
0-100 50.6 NTU previous value 50.3
0-1000 500 NTU previous value 499

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # 22431 check (once a month): Date 5-8-00

0-10 5.11 NTU previous value _____
0-100 50.2 NTU previous value _____
0-1000 499 NTU previous value _____

acceptable ✓ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/HY2000

COPIED 4-15-01

COPIED 4-15-01 00 #1/2

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22423

Formazin Calibration: Date 9-29-99 By C. FENTON

Next Formazin calibration (3 months) due by 12-29-99

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #___ check (once a month): Date 9-29-99
@ Calibration
0-10 5.13 NTU
0-100 50.8 NTU
0-1000 495 NTU

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #22423 check (once a month): Date 10-29-99

0-10 5.15 NTU previous value 5.13
0-100 50.6 NTU previous value 50.8
0-1000 497 NTU previous value 495

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date 11-28-99

0-10 5.12 NTU previous value 5.15
0-100 50.8 NTU previous value 50.6
0-1000 494 NTU previous value 497

acceptable ✓ (+/- 5.0%) recalibrate _____

COA

COPIED 4-15-01

00 #2-12

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY 2000

Serial # 22423

Formazin Calibration: Date 12-25-99 By G. FENTON

Next Formazin calibration (3 months) due by 3-25-99

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards #22423 check (once a month): Date 12-25-99
@ Calibration
0-10 5.05 NTU
0-100 50.1 NTU
0-1000 494 NTU

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #22423 check (once a month): Date 2-8-00 By L.P.

0-10	5.10	NTU	previous value 5.05	LINDA PEAK IN TRIDITY
0-100	50.4	NTU	previous value 50.1	
0-1000	498	NTU	previous value 494	

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards #___ check (once a month): Date _____

0-10	_____	NTU	previous value _____
0-100	_____	NTU	previous value _____
0-1000	_____	NTU	previous value _____

acceptable _____ (+/- 5.0%) recalibrate _____

COPIED 4-15-01

01 #1/2

SunnyBrae Sediment Lab
Calibration Sheet
HACH 2100P Portable Turbidimeter

HY

Serial # 22423

Formazin Calibration: Date 11-6-00 By C. FENTON

Next Formazin calibration (3 months) due by 2-6-~~00~~ 01

Gelex Standards to be checked 1 month and 2 months from calibration date

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired July 1999, expires March 2001

Gelex Standards # 22423 check (once a month): Date 11-6-00
@ Calibration C.F.
0-10 1.86 NTU
0-100 49.2 NTU
0-1000 497 NTU

Gelex Standards # 22423 check (once a month): Date 12-2-00
C.F.

0-10	5.04 NTU	previous value	4.86
0-100	50.4 NTU	previous value	49.2
0-1000	499 NTU	previous value	497

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # 22423 check (once a month): Date 1-4-01
C.F.

0-10	4.99 NTU	previous value	5.04
0-100	50.1 NTU	previous value	50.4
0-1000	502 NTU	previous value	499

acceptable ✓ (+/- 5.0%) recalibrate _____

CalibrationTurbidimeter/word98/cf/9-00

4-15-01 01 #2/2

SunnyBrae Sediment Lab
HACH 2100P Portable Turbidimeter
Quarterly Calibration Sheet

HY 2001

Serial # 22423

Formazin Calibration: Date 2-10-01 By C. FENTON

Calibrated with StablCal Ampule Kit Catalog # 26594-05

A. < 0.01 NTU ampule: catalog # 26487-01
B. 20 NTU ampule: catalog # 26848-01
C. 100 NTU ampule: catalog # 26849-01
D. 800 NTU ampule catalog # 26605-01
Acquired February 2001 Expires Sept. 2002

Next Formazin calibration (3 months) due by 5-10-01

Gelex Standards # 22423 check (once a month): Date 2-10-01
@ Calibration
0-10 4.94 NTU
0-100 50.6 NTU
0-1000 489 NTU

acceptable _____ (+/- 5.0%) recalibrate _____

Gelex Standards # 22423 check (once a month): Date 3-8-01

0-10 4.92 NTU previous value 4.94
0-100 50.8 NTU previous value 50.6
0-1000 489 NTU previous value 489

acceptable ✓ (+/- 5.0%) recalibrate _____

Gelex Standards # _____ check (once a month): ate 4-11-01
C.F.

0-10 4.90 NTU previous value 4.92
0-100 49.9 NTU previous value 50.8
0-1000 486 NTU previous value 489

acceptable ✓ (+/- 5.0%) recalibrate _____

Turbidity Standards

As the world leader in turbidimetric analysis, Hach provides instruments suitable for the most demanding applications, and the best in calibration standards.

StablCal™ Stabilized Formazin Primary Standards

StablCal™ Stabilized Formazin is the most significant advance in turbidity standards since the development of formazin. StablCal™ Standards are prepared by a proprietary method that provides values as low as 0.3 NTU, with a guaranteed stability of at least one year.

Unlike synthetic standards, StablCal™ Stabilized Formazin is true formazin, and exhibits light-scattering properties identical to those of freshly prepared standard formazin dilutions. It gives a response identical to standard formazin, providing the same performance, regardless of instrument, over the entire measurement range. Analysts can be confident of precise calibrations without the need for time-consuming and technique-sensitive preparation of standard formazin dilutions.

Meets NPDES and NPDWR compliance reporting requirements

StablCal™ Stabilized Formazin Primary Standards are cited as calibration standards in USEPA-accepted *Hach Method 8195 for Determination of Turbidity by Nepholometry*. The letter of acceptance states specifically that Method 8195 may be used for wastewater (NPDES) and drinking water (NPDWR) compliance monitoring.

Because StablCal™ Standards can be shelved until needed and require no preparation time, calibration can now be performed on a moment's notice, whenever required, assuring that laboratory work is not disrupted and that process instrumentation is off-line as short a time as possible.

Benefits of StablCal™ Stabilized Formazin Primary Standards

- No preparation, no dilution required
- Simplified calibration procedure
- Response identical to formazin over the entire measurement range
- Consistent performance on all instruments
- Complete confidence in results
- Shelf life of at least one year allows as-needed calibrations with no preparation time
- May be used for EPA reporting purposes

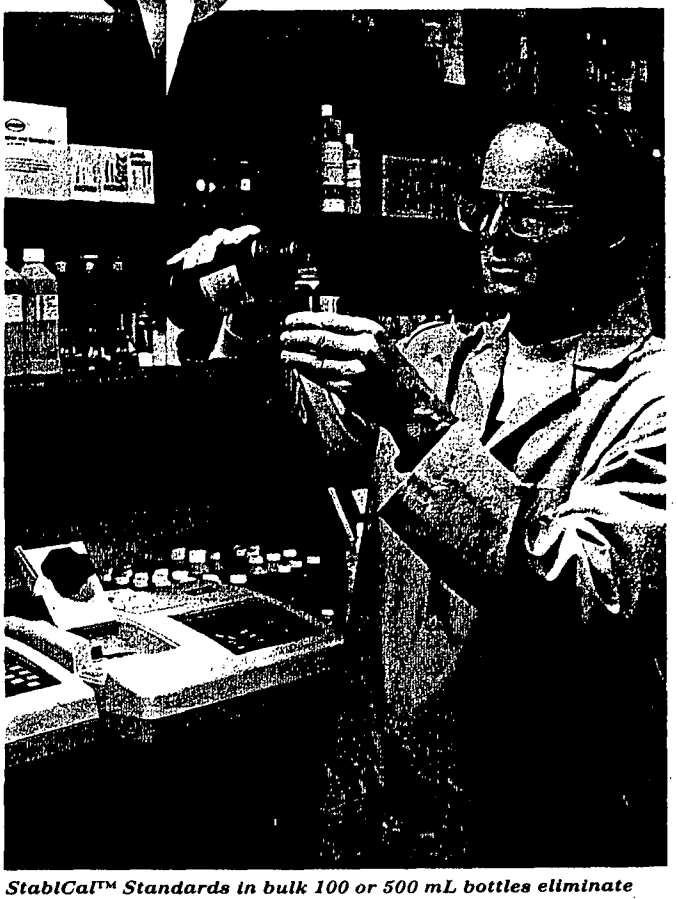
StablCal™ Standards are available in bulk 100-mL bottles, or in sealed sample cell vials. They can be purchased in sets that provide the values required to accurately calibrate your Hach turbidimeter.

New Low-NTU StablCal™ Standards simplify calibration verification

Verification of proper process instrument performance is an increasingly important part of many plant quality assurance programs. Verification ensures that a process is running correctly, and that product quality is being maintained.

Effective verification must be dependable, requiring high-accuracy standards. And verification must be fast to ensure that an instrument is off-line for the shortest time possible. Because the breakthrough technology behind StablCal™ Standards allows production of very low values that retain their stability, Hach is able to offer convenient sets of StablCal™ Standards that allow efficient verification of instrument calibration in just seconds.

These sets verify performance in the actual range of normal operation of instruments monitoring highly-filtered finished water. Because verification is performed using a true primary standard, operators can have absolute confidence that their instruments are reporting correctly. Page 208 shows a typical 1720D turbidimeter verification procedure using StablCal™ Standards. For more information on available values, see How To Order.



StablCal™ Standards in bulk 100 or 500 mL bottles eliminate the time and labor of preparing dilutions, giving you complete confidence in performance and results.

Formazin Primary Standards

Formazin, a primary turbidity standard, is an aqueous suspension of an insoluble polymer formed by the condensation reaction between hydrazine sulfate and hexamethylenetetramine.

Formazin suspensions can be reproduced with a high degree of accuracy, and a 4000 NTU suspension is stable for about one year when when properly stored. Calibration or "working" standards are prepared by dilution with high-purity (low turbidity) water. Because dilute formazin suspensions decrease in stability, Hach recommends that working standards be freshly prepared when needed, used immediately, and discarded. For convenience, analysts may wish to work with commercially-prepared 4000 NTU formazin standards available from Hach (see How To Order). For the complete procedure for formazin preparation, refer to your Hach turbidimeter manual.

Gelex® Secondary Standards

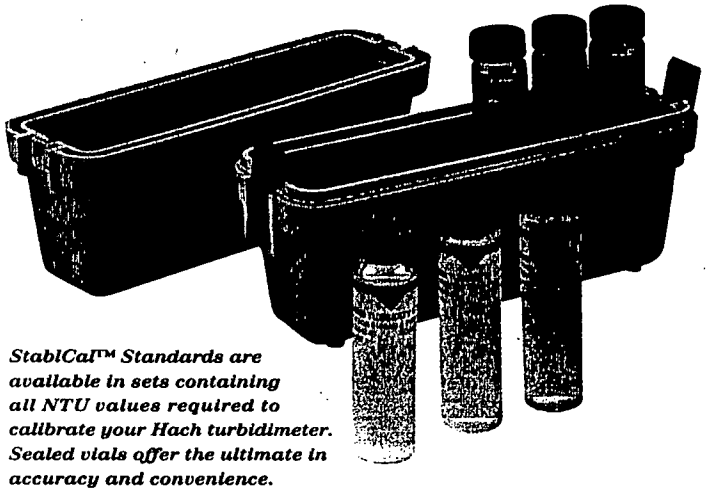
Gelex® Secondary Standards are suspensions of metal oxide particles in a rubber-like polymer gel. The particles cannot settle, drift, or coagulate, and are protected from oxidation or contamination.

Gelex® standards are supplied with all Hach laboratory turbidimeters. They come in sealed vials and are formulated to provide a nominal turbidity value for a specific Hach turbidimeter model. They are assigned a value on the turbidimeter with which they will be used after it has been calibrated using primary standards.

Gelex® standards provide a convenient means of verifying instrument performance, and offer a nearly indefinite shelf life and very stable value.

For an in-depth discussion of turbidity standards, please refer to our *Technical Information Series—Booklet No. 12, Turbidity Standards*, (circle **7045**).

For more information about StablCal™ Standards, request our technical paper (circle **9581**) or specification sheet (circle **1531**).



StablCal™ Standards are available in sets containing all NTU values required to calibrate your Hach turbidimeter. Sealed vials offer the ultimate in accuracy and convenience.

How To Order

StablCal™ Stabilized Formazin Primary Standards

Individual Values (also available in 500 mL and 1 L)

26598-42	1 NTU, 100 mL	$25.50
26980-42	0.5 NTU, 100 mL	25.00
26979-42	0.3 NTU, 100 mL	25.00

For Hach Pocket Turbidimeter™ Analysis System

26598-42	1 NTU, 100 mL	25.50
26601-42	20 NTU, 100 mL	25.50

For Hach Model 2100P Portable Turbidimeter

26594-00	<0.1*, 20, 100, 800 NTU, 500 mL each	175.00
26594-10	<0.1*, 20, 100, 800 NTU, 100 mL each	100.00
26594-05	<0.1*, 20, 100, 800 NTU, ampules	62.00

For Hach Model 2100N and 2100N IS Laboratory Turbidimeters

26621-00	<0.1*, 20, 200, 1000, 4000 NTU, 500 mL each	175.00
26621-10	<0.1*, 20, 200, 1000, 4000 NTU, 100 mL each	100.00
26621-05	<0.1*, 20, 200, 1000, 4000 NTU, ampules	77.00

For Hach Model 2100AN and 2100AN IS Laboratory Turbidimeters

26595-00	<0.1*, 20, 200, 1000, 4000, 7500 NTU, 500 mL each	200.00
26595-10	<0.1*, 20, 200, 1000, 4000, 7500 NTU, 100 mL each	150.00
26595-05	<0.1*, 20, 200, 1000, 4000, 7500 NTU, ampules	92.50

For Hach Ratio™ 2000 and Ratio™/XR Turbidimeters

26592-00	18, 180, 1800 NTU, 500 mL each	103.00
26592-10	18, 180, 1800 NTU, 100 mL each	75.00
26592-05	18, 180, 1800 NTU, ampules	55.00

For Hach Model 1720D and 1720C Process Turbidimeters

(All kits include two Calibration Cylinders and sufficient standard for up to eight calibrations.)

27488-00	<0.1*, 1 NTU, 1 L each	82.50
26596-00	<0.1*, 20 NTU, 1 L each	82.50
27487-00	<0.1*, 40 NTU, 1 L each	82.50
44153-00	Calibration Cylinder Assembly (required)	46.50

For Hach Model 2100A Laboratory Turbidimeter

26591-00	1.0, 10, 100, 1000 NTU, 500 mL each	128.50
26591-00	1.0, 10, 100, 1000 NTU, 100 mL each	128.50
26591-05	1.0, 10, 100, 1000 NTU, ampules	66.00

For Hach Model 18900 Ratio Turbidimeter

26593-00	18, 180 NTU, 500 mL each	77.00
26593-00	18, 180 NTU, 100 mL each	77.00
26593-05	18, 180 NTU, ampules	45.00

Formazin Primary Standards

25842-02	Ampule 7500 NTU Formazin Stock Suspension (for use with 2100AN Turbidimeter only)	27.00
2461-42	4000 NTU Formazin Stock Suspension, 100 mL	11.50
2461-49	4000 NTU Formazin Stock Suspension, 500 mL	36.00

Gelex® Secondary Standards

For Hach Model 2100P Portable Turbidimeter

24641-05	0-1, 0-10, 0-100, 0-1000 NTU	108.00

For Hach Model 2100N Laboratory Turbidimeter

25890-00	Stray Light, 0-2, 0-20, 0-200, 200-4000 NTU	135.00

For Hach Model 2100N IS Laboratory Turbidimeter

26200-00	Stray Light, 0-2, 0-20, 0-200 NTU	135.00

For Hach Model 2100AN Laboratory Turbidimeter

25892-00	Stray Light, 0-2, 0-20, 0-200, 200-4000, 4000-10,000 NTU	162.00

For Hach Model 2100AN IS Laboratory Turbidimeter

25893-00	Stray Light, 0-2, 0-20, 0-200, 200-4000, 4000-10,000 NTU	162.00

For Hach Model Ratio™/XR and Ratio™ 2000 Turbidimeter

23287-00	Stray Light, 0-1, 0-10, 0-100, 0-1000 NTU	135.00

*For Hach Model 2100A Laboratory Turbidimeter***

22956-00	0-1, 0-10, 0-100, 0-1000 NTU	135.00

For Hach Model 18900 Ratio™ Turbidimeter

22526-00	Stray Light, 0-2, 0-20, 0-200 NTU	108.00

* <0.1 NTU StablCal™ Standard is used in place of low-turbidity water when performing calibrations.

**Between regular calibration, Gelex secondary standards are used for verification of calibrations.