Report

Method

Samples:	15	Appraisers:	3
Replicates:	2	Total runs:	90

Assessment Agreement

Appraiser	# Inspected	# Matched	Percent	95% CI
Elaine	15	14	93.33	(68.05, 99.83)
George	15	13	86.67	(59.54, 98.34)
Jerry	15	13	86.67	(59.54, 98.34)

 # Matched: Appraiser agrees with him/herself across trials.

Fleiss' Kappa Statistics

Appraiser	Response	Kappa	SE Kappa	Z	P(vs > 0)
Elaine	fail	0.856459	0.258199	3.31705	0.0005
	pass	0.856459	0.258199	3.31705	0.0005
George	fail	0.732143	0.258199	2.83558	0.0023
	pass	0.732143	0.258199	2.83558	0.0023
Jerry	fail	0.700000	0.258199	2.71109	0.0034
	pass	0.700000	0.258199	2.71109	0.0034

Assessment Agreement

Appraiser	# Inspected	# Matched	Percent	95% CI
Elaine	15	14	93.33	(68.05, 99.83)
George	15	12	80.00	(51.91, 95.67)
Jerry	15	13	86.67	(59.54, 98.34)

 # Matched: Appraiser's assessment across trials agrees with the known standard.

Assessment Disagreement

Appraiser	# pass / fail	Percent	# fail / pass	Percent	# Mixed	Percent
Elaine	0	0.00	0	0.00	1	6.67
George	0	0.00	1	11.11	2	13.33
Jerry	0	0.00	0	0.00	2	13.33

Fleiss' Kappa Statistics

Appraiser	Response	Kappa	SE Kappa	Z	P(vs > 0)
Elaine	fail	0.928230	0.182574	5.08412	0.0000
	pass	0.928230	0.182574	5.08412	0.0000
George	fail	0.728507	0.182574	3.99020	0.0000
	pass	0.728507	0.182574	3.99020	0.0000
Jerry	fail	0.850000	0.182574	4.65564	0.0000
	pass	0.850000	0.182574	4.65564	0.0000

Assessment Agreement

# Inspected	# Matched	Percent	95% CI
15	11	73.33	(44.90, 92.21)

Matched: All appraisers' assessments agree with each other.

Fleiss' Kappa Statistics

Response	Kappa	SE Kappa	Z	P(vs > 0)
fail	0.747532	0.0666667	11.2130	0.0000
pass	0.747532	0.0666667	11.2130	0.0000

Assessment Agreement

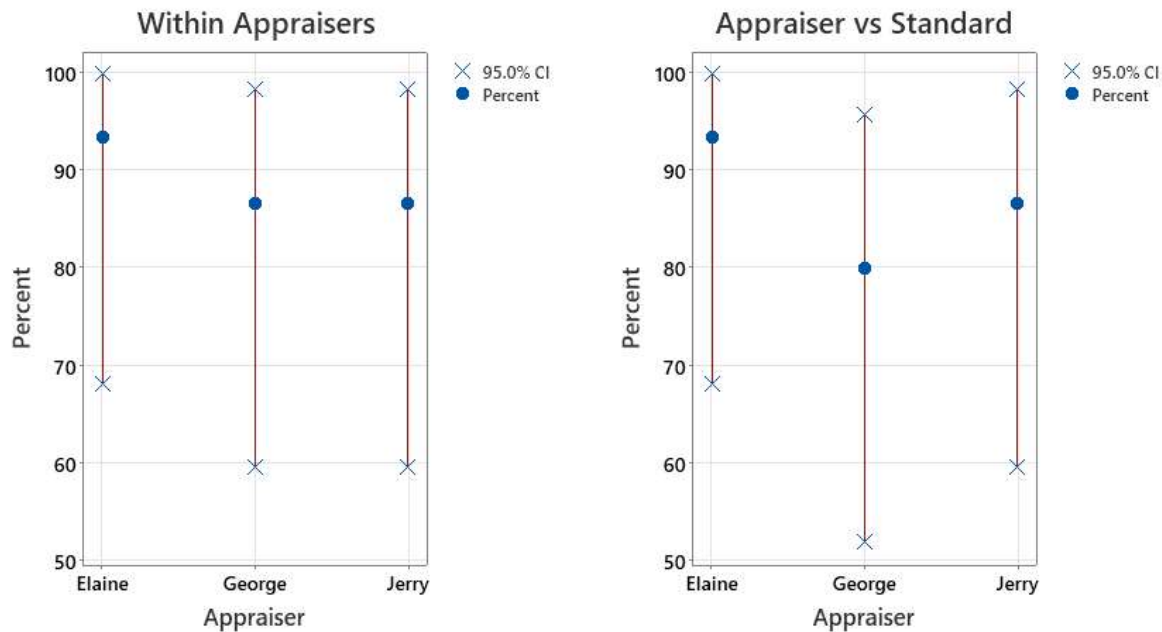| # Inspected	# Matched	Percent	95% CI
15	11	73.33	(44.90, 92.21)

Matched: All appraisers' assessments agree with the known standard.

Fleiss' Kappa Statistics

Response	Kappa	SE Kappa	Z	P(vs > 0)
fail	0.835579	0.105409	7.92700	0.0000
pass	0.835579	0.105409	7.92700	0.0000

Assessment Agreement

Within Appraisers — Percent vs Appraiser (Elaine, George, Jerry); 95.0% CI, Percent

Appraiser vs Standard — Percent vs Appraiser (Elaine, George, Jerry); 95.0% CI, Percent

Assessment Agreement

Appraiser	# Inspected	# Matched	Percent	95% CI
CSR 1	10	7	70.00	(34.75, 93.33)
CSR 2	10	7	70.00	(34.75, 93.33)
CSR 3	10	10	100.00	(74.11, 100.00)

Matched: Appraiser agrees with him/herself across trials.

Fleiss' Kappa Statistics

Appraiser	Response	Kappa	SE Kappa	Z	P(vs > 0)
CSR 1	A	1.00000	0.316228	3.16228	0.0008
	B	1.00000	0.316228	3.16228	0.0008
	C	1.00000	0.316228	3.16228	0.0008
	D	0.20000	0.316228	0.63246	0.2635
	E	-0.17647	0.316228	-0.55805	0.7116
	Overall	0.61290	0.166059	3.69089	0.0001
CSR 2	A	1.00000	0.316228	3.16228	0.0008
	B	1.00000	0.316228	3.16228	0.0008
	C	1.00000	0.316228	3.16228	0.0008
	D	-0.17647	0.316228	-0.55805	0.7116
	E	0.20000	0.316228	0.63246	0.2635
	Overall	0.61290	0.166059	3.69089	0.0001
CSR 3	A	1.00000	0.316228	3.16228	0.0008
	B	1.00000	0.316228	3.16228	0.0008
	C	1.00000	0.316228	3.16228	0.0008

D	1.00000	0.316228	3.16228	0.0008
E	1.00000	0.316228	3.16228	0.0008
Overall	1.00000	0.164383	6.08336	0.0000

Assessment Agreement

Appraiser	# Inspected	# Matched	Percent	95% CI
CSR 1	10	7	70.00	(34.75, 93.33)
CSR 2	10	6	60.00	(26.24, 87.84)
CSR 3	10	10	100.00	(74.11, 100.00)

 # Matched: Appraiser's assessment across trials agrees with the known standard.

Fleiss' Kappa Statistics

Appraiser	Response	Kappa	SE Kappa	Z	P(vs > 0)
CSR 1	A	1.00000	0.223607	4.47214	0.0000
	B	1.00000	0.223607	4.47214	0.0000
	C	1.00000	0.223607	4.47214	0.0000
	D	0.56583	0.223607	2.53045	0.0057
	E	0.31111	0.223607	1.39133	0.0821
	Overall	0.80390	0.119309	6.73802	0.0000
CSR 2	A	1.00000	0.223607	4.47214	0.0000
	B	1.00000	0.223607	4.47214	0.0000
	C	1.00000	0.223607	4.47214	0.0000
	D	0.04444	0.223607	0.19876	0.4212
	E	0.17367	0.223607	0.77667	0.2187
	Overall	0.67487	0.119309	5.65652	0.0000
CSR 3	A	1.00000	0.223607	4.47214	0.0000
	B	1.00000	0.223607	4.47214	0.0000
	C	1.00000	0.223607	4.47214	0.0000
	D	1.00000	0.223607	4.47214	0.0000
	E	1.00000	0.223607	4.47214	0.0000
	Overall	1.00000	0.116236	8.60317	0.0000

Assessment Agreement

# Inspected	# Matched	Percent	95% CI
10	6	60.00	(26.24, 87.84)

 # Matched: All appraisers' assessments agree with each other.

Fleiss' Kappa Statistics

Response	Kappa	SE Kappa	Z	P(vs > 0)
A	1.00000	0.0816497	12.2474	0.0000
B	1.00000	0.0816497	12.2474	0.0000
C	1.00000	0.0816497	12.2474	0.0000
D	0.33333	0.0816497	4.0825	0.0000
E	0.33333	0.0816497	4.0825	0.0000
Overall	0.72650	0.0424434	17.1168	0.0000

Assessment Agreement

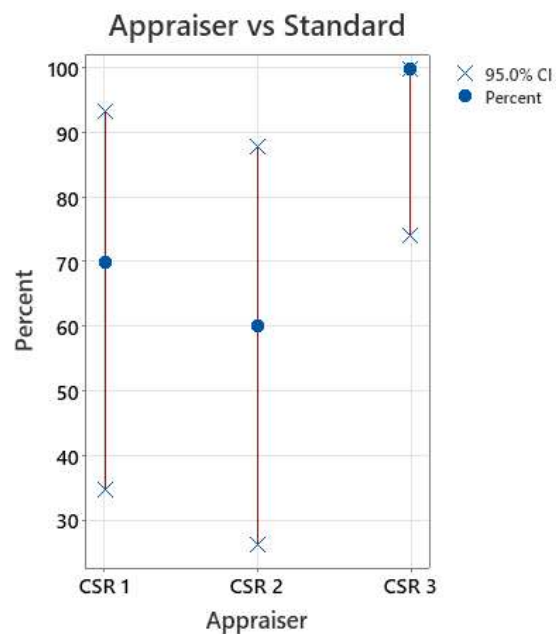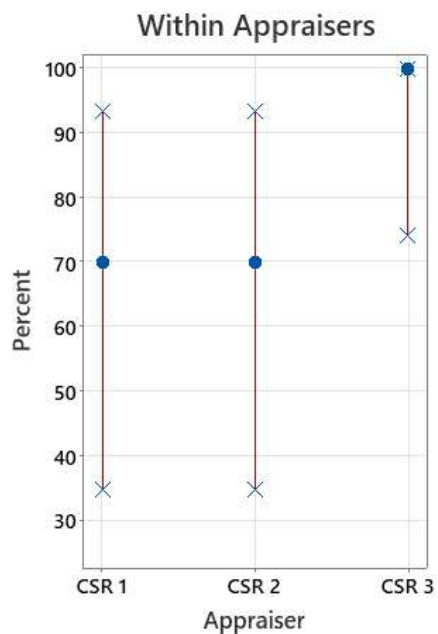| # Inspected	# Matched	Percent	95% CI
10	6	60.00	(26.24, 87.84)

 # Matched: All appraisers' assessments agree with the known standard.

Fleiss' Kappa Statistics

Response	Kappa	SE Kappa	Z	P(vs > 0)
A	1.00000	0.129099	7.7460	0.0000
B	1.00000	0.129099	7.7460	0.0000
C	1.00000	0.129099	7.7460	0.0000
D	0.53676	0.129099	4.1577	0.0000
E	0.49493	0.129099	3.8337	0.0001
Overall	0.82626	0.068297	12.0981	0.0000

Method

Parts:	10	Operators:	3
Replicates:	2	Total runs:	60

Two-Way ANOVA Table With Interaction

Source	DF	SS	MS	F	P
Parts	9	408.477	45.3863	255.085	0.000
Operators	2	5.537	2.7687	15.561	0.000
Parts * Operators	18	3.203	0.1779	6.977	0.000
Repeatability	30	0.765	0.0255		
Total	59	417.982			

α to remove interaction term = 0.05

Variance Components

Source	VarComp	%Contribution (of VarComp)
Total Gage R&R	0.23125	2.98
Repeatability	0.02550	0.33
Reproducibility	0.20575	2.65
Operators	0.12954	1.67
Operators*Parts	0.07621	0.98
Part-To-Part	7.53473	97.02
Total Variation	7.76598	100.00

Gage Evaluation

Source	StdDev (SD)	Study Var (6 × SD)	%Study Var (%SV)	%Tolerance (SV/Toler)
Total Gage R&R	0.48088	2.8853	17.26	28.85
Repeatability	0.15969	0.9581	5.73	9.58
Reproducibility	0.45360	2.7216	16.28	27.22
Operators	0.35991	2.1595	12.92	21.59
Operators*Parts	0.27607	1.6564	9.91	16.56
Part-To-Part	2.74495	16.4697	98.50	164.70
Total Variation	2.78675	16.7205	100.00	167.21

Joint Probability

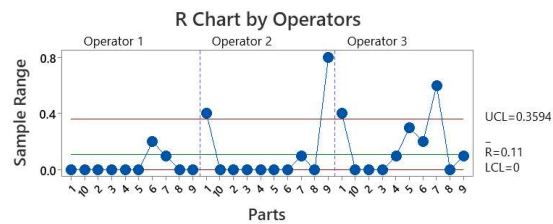| Description	Probability
A randomly selected part is bad but accepted	0.009
A randomly selected part is good but rejected	0.013

Conditional Probability

Description	Probability
A part from a group of bad products is accepted	0.127
A part from a group of good products is rejected	0.014

Gage R&R (ANOVA) Report for Turbidity

Gage name:
Date of study:

Reported by:
Tolerance:
Misc:

Components of Variation

% Contribution
% Study Var
% Tolerance

Turbidity by Parts

R Chart by Operators

Operator 1   Operator 2   Operator 3

UCL=0.3594
R̄=0.11
LCL=0

Turbidity by Operators

Xbar Chart by Operators

Operator 1   Operator 2   Operator 3

UCL=5.68
LCL=5.26

Parts * Operators Interaction

Operators
Operator 1
Operator 2
Operator 3
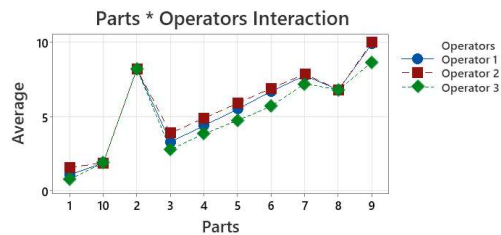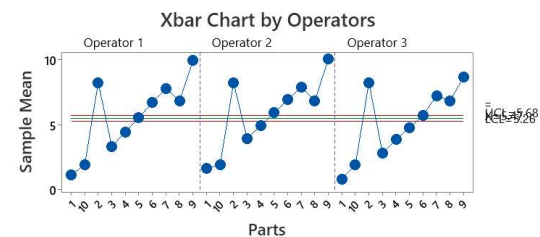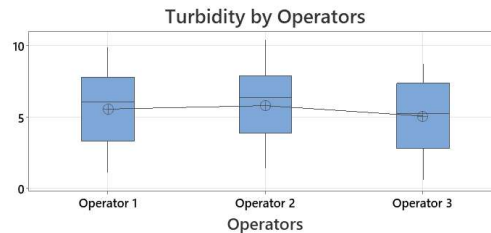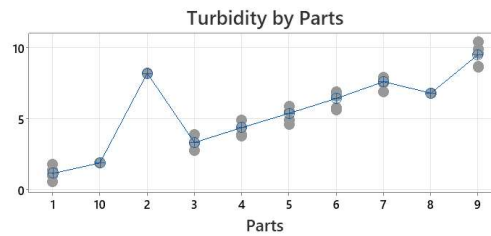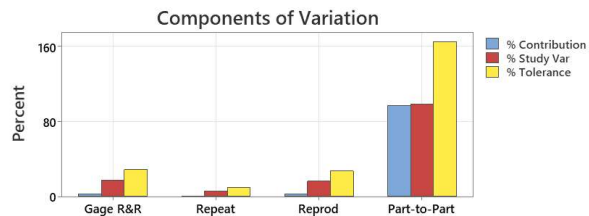
Gage Run Chart of Turbidity by Parts, Operators

Gage name:
Date of study:

Reported by:
Tolerance:
Misc:

Operators
Operator 1
Operator 2
Operator 3

Panel variable: Parts