

## CLEANING LABORATORY EVALUATION SUMMARY

DateNur:   10/07/2001     Experimenters:   Jason Marshall     Clientfyer:   Notex1     ProjectNumber:   Project #1     Substrates:   Suept #1     Clantaminante:   Castings     Clantaminante:   Castings     Analytical Method:   Cartaminante:     Torsonic   Torsonic Untrasonics and immersion cleaning.     Expresenter   Torsonicutors for each of the five cleaners were diluted to 5% using Duater in 600 mt. basters 0.06 set for 2 minutes. Thirty preveighed coupons were cleaned in the duatorsonic tank. The second using storb arguing an heat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing an heat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing an heat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing and bat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing an heat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing and bat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing and bat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing and bat gun at 500° for 1 minute. Once the coupons were cleaned using storb arguing and gun arguing and gun arguing an fanguing and for 1 minutes. The secouton target arguing a	SCL #:	2001										
Experimenters:   jason Marshall     ClientType:   Metal     ProjectMumber:   Project #1     Substrates:   Steal     PartType:   Courpon     Contaminants:   Coatings     Cleaning Method:   Utrasonics     Analytical Method:   Gravimetric     Purpose:   To compare ultrasonic and immersion cleaning.     Experimental   To sonubions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was of 10 or a hot plate.     Procedure:   To sonubrow stor cach of the five cleaners were diluted to 5% using DI water in 200 mL beakers. One set of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned in the ultrasonic tank and the other coupons were cleaned ultras the cleaner soluto the other tank and the ther coupons were cleaned in tank were tank and the tank and tank and the	DateRun:											
ClientType:   Metal     Project#lumber:   Project #l     Substrates:   Steel     ParType:   Coupon     Contaminants:   Coatings     Cleaning Methods:   Utrasonics     Analytical Methods:   Gravimetric     Purpose:   To compare ulrasonic and immersion cleaning.     Experimental   Two solutions for each of the five cleaners were divided to 5% using DI water in 600 mL beakers, One set of the sites were heated to 130 Fin a Cress 40 Mtz ultrasonic tank. The second set was heated to 130 on the second weighing was performed. Three coupons were cleaned in the outpace outpace were cleaned using stir-bar agtated immersion. After second weighing was performed three coupons were cleaned in the outpace outpace were cleaned using stir-bar agtated immersion. After secultated.     Results:   The ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.     Cleaner   Contaminant Coupon Coupon Average Previous 10 and 3 93 31 Beyond     Multikleen/Ultrasonics 99.93 99.71 99.83 99.86 97.80 110.003 99.81 99.81 100.21 10.003 99.83 99.61 100.03 99.81 99.81 100.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 99.80 99.41 10.003 99.81 99.21 10.003 99.81 99.21 99.80 99.41 10.003 99.81 99.21 10.003 99.81 99.21 99.80 99.41 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99.21 10.003 99.81 99												
Project #1 Project #1   Substrates: Stel   PartType: Coupon   Contaminants: Coatings   Canaminants: Coatings   Canaminants: Coatings   Analytical Methods: Gravimetric   Purpose: To compare ultrasonic and immersion cleaning.   Experimental Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mt beakers. One set of beakers were heated to 130 fin a Creat 40 ftk ultrasonic tank. The second set was beakers do nast on a hot plate.   Thirty preveloped coupons were created with the Houghton Vbt C2 contaminant and allowed to sit or 2. Thirty preveloped coupons were cleaned in the ultrasonic tank. The second set was beakers, one set was a hot plate.   The ultrasonic energy was found to be more succesful than the immersion cleaning was. The following table lists the calculated results for both methods.   Results: The ultrasonic 99.99 99.56 100.001 99.83 99.32 100.003 99.81 100.005 100.03 99.82 100.03 99.81 100.005 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 100.05 100.03 99.82 100.03 99.81 00.05 99.83 100.01 99.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.83 99.55 100.00 199.85 99.51 100.00 199.85 99.55 100.00 199.83 99.55 100.00 19												
Substrates:   Stel     PartType:   Coupon     Contaminants:   Coatings     Cleaning Method:   Ubrasonics     Analytical Method:   Gravimetric     Purpose:   To compare ultrasonic and immersion cleaning.     Experimental   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set procedure:     No solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set procedure:     Procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set procedure is the stand the other coupons were cleaned in the ultrasonic tank sing stir-bar anglated immersion. After cleaning. coupons were result with the Houpons were cleaned in set ultrasonic and my water at 120 For 30 seconds and dried using at heat guint at 500 For 1 minute. Once the coupons returned for more temperature. final weights were measured and efficiencies were calculated.     Results:   The ultrasonic sengry was found to be more successful than the immersion cleaning was. The following 99.39 99.57 [00.01 00.02 99.3]     Multikleen Ultrasonics 100.02 100.01 100.03 100.04 100.01 99.21   Descond 100.02 100.01 100.03 99.31     Nutrasonics 100.02 100.03 100.04 100.01 99.21   Descond 100.02 100.01 99.25 109.27     Descond Immersion 99.39 99.03 99.26 99.26 99.24 99.39 <td< td=""><td>21</td><td colspan="9"></td></td<>	21											
PartType: Coupon   Contaminants: Coatings   Cleaning Method: Ultrasonics   Analytical Method: Gravimetric   Purpose: To compare ultrasonic and immersion cleaning.   Experimental Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 f in a Crest 40 KHz ultrasonic tank. The second set was heated to 130 or a hot plate.   Thirty preweighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in each solution for 3 minutes.   Results: The ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated esults for both methods.   Results: Cleaner ContaminantCoupon Coupon Nerrage/Previous Results:   Ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.   Results: Cleaner ContaminantCoupon Coupon Nerrage/Previous Results:   Ultrasonics 100.06 100.01 100.03 100.01 100.05 100.01 90.926 Dasco 100.02 100.02 100.03 100.01 90.93 96.86 PinproClean/Intrasonics 100.00 99.70 195.8 97.7 95.8 97.7 95.8 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 95.9 97.7 97.7	ProjectNumber:	Project #1										
Contaminants:   Coatings     Licening Methods:   Gravimetric     Analytical Methods:   Gravimetric     Purpose:   To compare ultrasonic and immersion cleaning.     Experimental Procedure:   To compare ultrasonic and the five cleaners were diuted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a bakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a bakers were cleaned in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion. After cleaning, coupons were cleaned in each solution for 3 minutes. Fifteen coupons were clauted in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion. After cleaning, coupons were reated at 120 F for 30 seconds and dried using a heat gun at 500 F for 1 minute. Once the coupons were clauned is were measured and efficiencies were aclauted.     Results:   Cleaner ContaminantCoupon Coupon Neereqderevious period ultrasonics 99.97 97.7 99.33 99.46 99.30 period ultrasonics 100.02 100.03 100.04 100.03 99.31 (Certa ultrasonics 100.02 100.03 99.38 99.70 99.58 (Certa immersion 99.71 99.73 99.58 99.76 99.50 (	Substrates:	Steel										
Cleaning Methods:   Utrasonics     Cleaning Methods:   Gravimetric     Purpose:   To compare ultrasonic and immersion cleaning.     Experimental Procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 in a Crest 40 MHz ultrasonic tank. The second set was heated to 130 on hot plate.     Thirty proweighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in the advisor outpons were cleaned in the ultrasonic tank. The second set was heated to 130 on hot plate.     Results:   The intrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.     Cleaner   Contaminant(Coupon) Coupon Coupon Neurog Previous pagitated immersion 99.87 100.11 100.05 100.01 99.26 Dasco Ultrasonics 100.02 100.03 100.04 100.03 93.11 Certa Ultrasonics 100.06 99.70 99.55 99.78 HuprocleanUltrasonics 100.02 100.03 100.04 100.03 93.15 Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.     Summary:   Substrates:   Stel     Contaminants:   Costings     Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results. <t< td=""><td>PartType:</td><td colspan="9">Coupon</td></t<>	PartType:	Coupon										
Analytical Methods   Gravimetric     Purpose:   To compare ultrasonic and Immersion cleaning.     Experimental Procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set a hot plate.     Thirty preveighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in each solution for 3 minutes. Fifteen coupons were cleaned in the Ultrasonic tank and the other coupons were cleaned using a heat gun at 500 for 1 minutes. One the coupons were cleaned using a heat gun at 500 for 1 minute.     Results:   The ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.     Results:   Cleaner   Contaminan(Coupon) Coupon (Coupon (AveragPrevious) Results in the ultrasonics 99.39 99.77 99.53 99.56 100.01 99.83 99.57 99.59 Inproclean/Ultrasonics 99.37 100.11 100.05 100.01 90.20 Dasco   Ultrasonics 100.06 99.71 99.57 99.59 Inproclean/Ultrasonics 99.37 109.71 99.57 99.59 Inproclean/Ultrasonics 99.37 109.71 99.57 99.59 Inproclean/Ultrasonics 99.37 99.70 99.58 99.74 99.39 Beyond   Ultrasonics 100.06 100.01 39.311 Certa     Cate Interestion   Substrates:   Substrates:   Conparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial company Name:   Product Name:   Conc.:   Effective:   Observations: Heatbath Corporation   Multi-Kleen 1568	Contaminants:	Coatings										
Purpose:   To compare ultrasonic and immersion cleaning.     Experimental Procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a hot plate.     Thirty preweighed coupons were cleaned in the ultrasonic tank. The second set was heated to 130 on a hot plate.   Thirty preweighed coupons were cleaned in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion, coupon were cleaned using stir-bar agitated immersion, coupon sever cleaned using stir-bar agitated immersion coupon for the to prove the coupons returned to noom temperature. Final weights were measured and efficiencies were calculated.     Results:   The ultrasonic energy was found to be more successful than the immersion cleaning was. The following tables the calculated results for both methods.     Ultrasonics   99.39   99.77   99.38   99.86   70.88     Inproclean/Ultrasonics   99.87   100.01   99.83   99.70     Dasco   Ultrasonics   100.02   100.03   99.91   99.71     Beyond   Ultrasonics   100.02   100.01   99.92   99.70   99.59     Inproclean/Ultrasonics	Cleaning Methods:	Ultrasonics										
Experimental Procedure:   Two solutions for each of the five cleaners were diluted to 5% using DI water in 600 mL beakers. One set of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a hot plate.     Thirty preweighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in each solution for 3 minutes. Fifteen coupons were cleaned in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion. After cleaning, coupons were insed in tap water at 120 F for 3 seconds and dried using a heat gun at 500 F for 1 minute. Once the coupons returned to noom temperature, final weights were measured and efficiencies were calculated.     Results:   The ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.     Cleaner   ContaminantCoupon [Coupon Coupon Average[Previous] Multikleen Ultrasonics 99.93 99.56 100.01 99.83 99.32 Beyond Ultrasonics 100.02 100.03 100.04 100.03 99.31 (Deta Ultrasonics 100.02 100.03 100.04 100.03 99.31 (Deta Ultrasonics 100.02 100.03 100.04 100.03 99.31 (Deta Ultrasonics 100.02 100.03 190.94 100.03 99.72 99.59 Inproclear/Immersion 99.71 98.72 99.48 99.30 99.44 (Dasco Ultrasonics 100.02 100.03 100.04 100.03 99.93 96.80 (Immersion 99.71 97.53 98.22 98.16 99.27) (Certa Immersion 99.71 97.53 98.22 98.16 99.27) (Certa Immersion 99.09 99.26 99.64 99.33 98.15)     Summary:   Substrates:   Steel Contaminants: Coaligs   Coance: Effective: Observations: Heatbath Corporation. Multi-Kleen 1568 5 99.86 2 ultrasonics Heatbath Corporation. Multi-Kleen 1568 5 99.86 2 ultrasonics Heatbath Corporation. Multi-Kleen 1568 5 99.87 [	Analytical Methods:	Gravimetric										
Procedure:   of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a hot plate.     Thirty preweighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in each solution for 3 minutes. Fifteen coupons were cleaned in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion. After cleaning, coupons were insed in tap water at 120 F for 30 seconds and dried using a heat gun at 500 F for 1 minute. Once the coupons returned to room temperature, final weights were measured and efficiencies were calculated.     Results:   The ultrasonic energy was found to be more successful than the immersion cleaning was. The following table lists the calculated results for both methods.     Cleaner   Contaminant Coupon Coupon Average Previous I a 2 3 Nessuits     Multikleen Ultrasonics   99.99   99.77   99.83   99.86   97.88     ImprocleanUltrasonics   99.99   99.77   99.83   99.86   99.86     Beyond   Ultrasonics   100.02   100.03   99.31   99.32     Beyond   Ultrasonics   90.90   99.77   99.59   99.44   99.40     Dasco   immersion   99.19   99.73   99.51   99.74   99.59     Inprocleant/Immersion   99.44   99.20   99.64   99.	Purpose:	To compare ultrasonic and immersion cleaning.										
table lists the calculated results for both methods.CleanerContaminant(Coupon Coupon Average Previous ResultsMultikleenUltrasonics99.9999.7799.8399.8697.88Inproclead/Ultrasonics99.9999.57100.0199.26DascoUltrasonics100.02100.03100.04109.26DascoUltrasonics100.0699.70100.0399.31CertaUltrasonics100.0699.70190.5899.17Inproclead/Immersion99.9399.7099.7499.99BeyondImmersion99.7399.7499.99BeyondImmersion99.7399.7499.27DascoImmersion99.7399.7499.29BeyondImmersion99.7399.7499.27CertaImmersion99.7499.3999.74DascoImmersion99.7399.6499.33Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.Summary:Substrates:StelContaminants:CoatingsContaminants:CoatingsContaminants:CoatingsContaminants:CoatingsGoaly & BeyondBeyond 2001Oakite ProductsInproclean 3800Oakite ProductsInproclean 3800Oakite ProductsInproclean 3800Oakite ProductsIn		of beakers were heated to 130 F in a Crest 40 kHz ultrasonic tank. The second set was heated to 130 on a hot plate. Thirty preweighed coupons were coated with the Houghton Veto C3 contaminant and allowed to sit for 2 hours. A second weighing was performed. Three coupons were cleaned in each solution for 3 minutes. Fifteen coupons were cleaned in the ultrasonic tank and the other coupons were cleaned using stir-bar agitated immersion. After cleaning, coupons were rinsed in tap water at 120 F for 30 seconds and dried using a heat gun at 500 F for 1 minute. Once the coupons returned to room temperature, final weights										
Summary:     Substrates:     Stel       Company Name:     Product Name:     Conc.:     Efficiency:     Effective:     Observations:       Summary:     Substrates:     Steel     Conc.:     Efficiency:     Effective:     Observations:       Summary:     Substrates:     Inproclean 300     5     99.36     99.36     99.37	Results:											
Summary:     Substrates:     Steel		Cleaner	Contamina									
Beyond     Ultrasonics     99.87     100.11     100.05     100.01     99.26       Dasco     Ultrasonics     100.02     100.03     100.03     99.33     91.1       Certa     Ultrasonics     100.06     99.70     100.03     99.93     96.66       MultikleenImmersion     99.93     99.70     99.58     99.74     99.99       Beyond     Immersion     99.71     98.72     99.48     99.30     99.44       Dasco     Immersion     99.71     98.73     98.22     98.16     99.27       Certa     Immersion     99.90     99.66     99.64     99.33     98.15       Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.     Summary:     Substrates:     Steel     Contaminants:     Coatings       Contaminants:     Coatings     Contains     Multi-Kleen 1568     5     99.86     ultrasonics       Heatbath Corporation     Multi-Kleen 1568     5     99.83     ultrasonics		Multikleen	Ultrasonics	s 99.99	99.77	99.83	99.86	97.88				
Dasco     Ultrasonics     100.02     100.03     100.03     93.11       Certa     Ultrasonics     100.06     99.70     100.03     99.93     96.86       Multikleen Immersion     99.88     99.65     99.17     99.59     99.59       Inproclear Immersion     99.71     98.72     99.73     99.94       Beyond     Immersion     99.71     98.72     99.74     99.94       Dasco     Immersion     99.71     98.72     99.74     99.94       Dasco     Immersion     99.71     98.72     98.15     99.77       Certa     Immersion     99.09     99.26     99.64     99.33     98.15       Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.     Substrates:     Steel     Contaminants:     Coatings       Contaminants:     Coatings     Contaminants:     Coatings     Ultrasonics     Immersion       Heatbath Corporation     Multi-Kleen 1568     5     99.87     Immersion <td></td>												
CertaUltrasonics100.0699.70100.0399.9396.86Multikleenimmersion99.8899.6599.1799.5799.59Inproclearimmersion99.9399.7099.5899.7499.99Beyondimmersion99.7198.7299.4899.3099.44Dascoimmersion98.7497.5398.2298.1699.27Certaimmersion99.9999.6499.3398.15Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.Summary:Substrates:SteelContaminants:CoatingsCompany Name:Product Name:Conc.:Efficiency:Effective:Observations:Heatbath CorporationMulti-Kleen 1568599.86ultrasonicsOakite ProductsInproclean 3800599.74immersionOakite ProductsInproclean 3800599.74immersionOday & BeyondBeyond 2001599.30immersionToday & BeyondBeyond 2001599.30immersionDA Stuart CompanyDasco Kleen 32505100.03ultrasonicsDA Stuart CompanyDasco Kleen 3250598.16immersionHoughton InternationalCerfa Kleen 5387599.93iutrasonics												
MultikleenImmersion99.8899.6599.1799.5799.59InprocleanImmersion99.9399.7099.5899.7499.99BeyondImmersion99.7198.7299.4899.3099.44DascoImmersion99.7497.5398.2298.1699.27CertaImmersion99.0999.2699.6499.3398.15Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.Summary:Substrates:SteelContaminants:CoatingsContaminants:CoatingsComparisonMulti-Kleen 1568599.86Heatbath CorporationMulti-Kleen 1568599.83Oakite ProductsInproclean 3800599.74ImmersionOakite ProductsInproclean 3800599.74ImmersionOakite ProductsInproclean 3800599.74ImmersionToday & BeyondBeyond 20015100.01IutrasonicsToday & BeyondBeyond 2001599.30ImmersionDA Stuart CompanyDasco Kleen 32505100.03IutrasonicsDA Stuart CompanyDasco Kleen 3250599.30IutrasonicsDA Stuart CompanyDasco Kleen 3250599.93IutrasonicsDastuart CompanyDasco Kleen 3250599.30Iutrasonics												
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DascoImmersion98.7497.5398.2298.1699.27CertaImmersion99.0999.2699.6499.3398.15Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.Summary:Substrates:SteelContaminants:CoatingsCompany Name:Product Name:Conc.:Efficiency:Effective:Observations:Heatbath CorporationMulti-Kleen 1568599.86IltrasonicsHeatbath CorporationMulti-Kleen 1568599.83IltrasonicsOakite ProductsInproclean 3800599.74ImmersionOakite ProductsInproclean 3800599.74ImmersionToday & BeyondBeyond 20015100.01IltrasonicsDA Stuart CompanyDasco Kleen 3250598.16ImmersionHoughton InternationalCerfa Kleen 5387599.93Iltrasonics												
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Comparison of this data to the previous trial data revealed that the ultrasonic cleaning was more effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.Summary:Substrates:SteelContaminants:CoatingsCompany Name:Product Name:Conc.:Efficiency:Effective:Observations:Heatbath CorporationMulti-Kleen 1568599.86Ill ultrasonicsHeatbath CorporationMulti-Kleen 1568599.83Ill ultrasonicsOakite ProductsInproclean 3800599.74ImmersionOakite ProductsInproclean 3800599.30Ill ultrasonicsToday & BeyondBeyond 20015100.01Ill ultrasonicsDA Stuart CompanyDasco Kleen 32505100.03Ill ultrasonicsDA Stuart CompanyDasco Kleen 3250599.93Ill ultrasonics		Dasco	Immersion	98.74	97.53	98.22	98.16	99.27				
effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous trial results.      Summary:   Substrates:   Steel     Contaminants:   Coatings     Company Name:   Product Name:   Conc.:   Efficiency:   Effective:   Observations:     Heatbath Corporation   Multi-Kleen 1568   5   99.86   ultrasonics     Heatbath Corporation   Multi-Kleen 1568   5   99.57   Immersion     Oakite Products   Inproclean 3800   5   99.74   Immersion     Oakite Products   Inproclean 3800   5   99.74   Immersion     Today & Beyond   Beyond 2001   5   100.01   ultrasonics     DA Stuart Company   Dasco Kleen 3250   5   100.03   ultrasonics     DA Stuart Company   Dasco Kleen 3250   5   99.93   ultrasonics		Certa	Immersion	99.09	99.26	99.64	99.33	98.15				
Substrates:SteelContaminants:CoatingsCompany Name:Product Name:Conc.:Efficiency:Effective:Observations:Heatbath CorporationMulti-Kleen 1568599.86ImmersionHeatbath CorporationMulti-Kleen 1568599.57ImmersionOakite ProductsInproclean 3800599.83ImmersionOakite ProductsInproclean 3800599.74ImmersionToday & BeyondBeyond 20015100.01ImmersionToday & BeyondBeyond 2001599.30ImmersionDA Stuart CompanyDasco Kleen 32505100.03ImmersionHoughton InternationalCerfa Kleen 5387599.93Immersion	effective in a cleaner solution. The new immersion cleaning results were nearly identical to the previous											
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		Houghton	Internation	al Cerfa	Cerfa Kleen 5387			99.93		ultrasonics		
		Houghton	Internation	al Cerfa	Cerfa Kleen 5387		5	99.33		immersion		



## **CLEANING LABORATORY EVALUATION SUMMARY**

When comparing similar bath solutions (fresh), ultrasonic cleaning was found to be more effective than the immersion cleaning was for removing the rust preventative.