

## CTS Fasteners & Metals Report No. 89

### Summary of Chemical Analysis Results

Chemical Analysis Carbon & Low Alloy Steel  
 Material: AISI 1030 Steel  
 Sample ID: L83

Element	Grand Mean	B-L Std Dev	Two Std Dev Range		Three Std Dev Range	
Carbon	0.3181	0.0105	0.2971	- 0.3391	0.2866	- 0.3496
Manganese	0.7065	0.0086	0.6893	- 0.7237	0.6807	- 0.7323
Phosphorus	0.0082	0.0008	0.0066	- 0.0098	0.0058	- 0.0106
Sulfur	0.0259	0.0017	0.0225	- 0.0293	0.0208	- 0.0310
Silicon	0.2314	0.0049	0.2216	- 0.2412	0.2167	- 0.2461
Copper	0.2120	0.0051	0.2018	- 0.2222	0.1967	- 0.2273
Nickel	0.0706	0.0025	0.0656	- 0.0756	0.0631	- 0.0781
Chromium	0.1167	0.0036	0.1095	- 0.1239	0.1059	- 0.1275
Molybdenum	0.0158	0.0015	0.0128	- 0.0188	0.0113	- 0.0203
Aluminum	0.0021	0.0009	0.0003	- 0.0039	0.0000	- 0.0048

Material: AISI 1014 Steel  
 Sample ID: L84

Element	Grand Mean	B-L Std Dev	Two Std Dev Range		Three Std Dev Range	
Carbon	0.4080	0.0128	0.3824	- 0.4336	0.3696	- 0.4464
Manganese	0.6650	0.0095	0.6460	- 0.6840	0.6365	- 0.6935
Phosphorus	0.0102	0.0009	0.0084	- 0.0120	0.0075	- 0.0129
Sulfur	0.0061	0.0009	0.0043	- 0.0079	0.0034	- 0.0088
Silicon	0.1990	0.0052	0.1886	- 0.2094	0.1834	- 0.2146
Copper	0.0200	0.0013	0.0174	- 0.0226	0.0161	- 0.0239
Nickel	0.0280	0.0021	0.0238	- 0.0322	0.0217	- 0.0343
Chromium	0.0570	0.0021	0.0528	- 0.0612	0.0507	- 0.0633
Molybdenum	0.0168	0.0013	0.0142	- 0.0194	0.0129	- 0.0207
Aluminum	0.0285	0.0016	0.0253	- 0.0317	0.0237	- 0.0333

Statistics for samples L83 and L84 are based on the results of at least 89 labs.