

Service performance accumulated of the first half of 2018 (2000 ~ 2018. 6)

Prepared by



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1. Summary

1-1. Service performance in each field of industry

	Power plant	Oil & Gas	Transport (Railroad, Automobile, Flight, etc.)	Research institute, University, Government office	Steel/ Shipbuilding	National defense	etc.	Total
Number of Service performed	66	56	79	23	37	6	91	358

1-2. Service performance in each evaluation area

	Material properties ^A	Residual stress	Metal degradation	etc.	Total
Number of Service performed	167	152	37	2	358

*note A) Tensile properties, Fracture toughness, hardness, Elastic modulus, Fracture strength
 B) Material degradation diagnosis and assessment, Safety assessment, Damage analysis, Life assessment

2. Details

No.	Requested by	Tested date	Contents
1	Ulsan Thermal Power Plant	2001-10	Evaluated indentation tensile properties on pipes of power plant unit no. 4.
2	Paul Scherre Institut	2001-11	Evaluated properties on welded area and heat-affected area of Reactor Pressure Vessel.
3	Korea Occupational Safety & Health Agency(KOSHA)	2001-12	Evaluated mechanical properties on damaged tower crane.
4	Korea Gas Corporation(KOGAS)	2001-12	Evaluated properties on welded area and heat-affected area of API 5L pipes
5	LG Caltex Oil	2002-02	Evaluated degradation rate of Vacuum Heater.
6	Gori Nuclear Power Plant	2002-03	Evaluated indentation tensile properties on auxiliary cooling water pipes.
7	GE Power Systems	2002-04	Evaluated properties on all sorts of pipes of API X.
8	Boryeong Thermal Power Plant	2002-04	Evaluated degradation rate and performed safety inspection of turbine rotor.

9	Korea Expressway Corporation	2002-05	Evaluated safety of expressway (Fire accident).
10	Yeongheung Thermal Power Plant	2002-08	Evaluated properties on major pipes of next generation thermal power plant (under construction)
11	GE Power Systems	2002-11	Evaluated properties on buried pipelines for the LNG distribution.
12	Tokyo Gas	2003-03	Evaluated properties on steel materials for developing High Grade Pipeline.
13	JFE Group (Formerly known as NKK Corp)	2003-03	Evaluated properties on laser-welded area in SGP steel.
14	Daewoo Shipbuilding & Marine Engineering Co., Ltd.(DSME)	2003-03	Evaluated direction of depth welding with properties on heat-affected area of different welded structures
15	National Research Institute of Cultural Heritage	2003-04	Provided technical consultation on hardness evaluation
16	GE Power systems	2003-05	Evaluated properties on buried pipelines for the LNG distribution.- Mexico in-field
17	Hyundai MOBIS	2003-05	Evaluated properties on airbag housing/basket surface and direction of thickness (auto parts)
18	Samsung Coming Precision Materials Co, Ltd.	2003-07	Evaluated tensile properties on Platinum-Rhodium alloy.
19	Korea Electric Power Corporation (KEPCO)	2003-07	Evaluated tensile properties on SA106C Gr.B according to the form of welding
20	Himeji Institute of Technology	2003-07	Evaluated tensile properties on S35C/ S55C steels according to friction condition and time
21	Osaka University	2003-07	Evaluated properties on laser-welded area of S35C/ S55C steels
22	Samsung Heavy Industries Co., Ltd.	2003-08	Conducted safety inspection on ship structures
23	Korea Railroad Research Institute (KRRRI)	2003-08	Evaluated tensile properties on low-carbon steel before and after the heat treatment.
24	TWI	2003-09	Entered technical alliance with TWI regarding IIT, and evaluated tensile properties on welded area.
25	POSCO	2003-10	Evaluated directional properties on developed and produced materials.
26	Huntington Technology	2003-11	Evaluated tensile properties on API 5 L, the natural gas pipeline.
27	POSCO at Gwangyang (Institute of Automotive Technology)	2003-12	Evaluated mechanical properties on each plane of multi-shaped pipes.
28	Hyundai DYMOS	2004-01	Evaluated properties on AL cast alloy and shaft of Cr-Mo steel.
29	Conocophillips	2004-01	Evaluated tensile properties on A516-70 and storage tank.
30	Chevron Texaco	2004-01	Evaluated tensile properties on API 5L steels for oil distribution.
31	Canspec	2004-02	Evaluated indentation tensile properties on Cr-Mo steel/ Brittle material.
32	Hyundai MOBIS	2004-02	Evaluated tensile properties on automobile structural steel.
33	Hyundai DYMOS	2004-02	Evaluated the elasticity modulus on AL cast alloy.

34	Samsung Techwin Co., Ltd.	2004-04	Provided technical consulting about method for indentation tensile properties evaluation on Ni / Ti alloy.
35	KEPCO E&C	2004-06	Evaluated properties on welded area of STS316L
36	KEPCO KPS	2004-08	Evaluated tensile properties on 2.25 Cr-Mo, the steel of boiler tube caused by degradation as year passes.
37	Korea Atomic Energy Research Institute(KAERI)	2004-09	Evaluated residual stress on multi-layered welds of STS316L pipes.
38	Research Institute of Industrial Science & Technology(RIST)	2004-09	Evaluated residual stress on Plasma coating layer
39	POSCO	2004-09	Evaluated tensile properties on all sorts of pipes of API X
40	Dongkuk Steel Mill Co., Ltd.	2004-11	Evaluated tensile properties on steel plate material after manufacturing process.
41	KEPCO-E&C	2004-11	Evaluated local tensile properties on welded area where the different type of metals meet.
42	ExxonMobil	2004-11	Evaluated residual stress on welded area of API X65 as welded methods.
43	ExxonMobil	2004-12	Evaluated quantitative residual stress on laser peened effect on material surface (evaluation of uniformity of compressive residual stress)
44	Dong-Eui University	2005-02	Measured change in residual stress depend on the temperature of SCM440 and SKD61
45	TWI	2005-02	Evaluated tensile properties as welded methods.
46	Korea Gas Safety Corporation (KGS)	2005-02	Analyzed damage caused in the container of compressed natural gas vehicle.
47	The Catholic University of Korea (Daewoo Information Systems Co., Ltd)	2005-02	Measured mechanical properties of human bone.
48	Hannam University	2005-03	Evaluated residual stress on PE Specimens using AIS 3000
49	Pyungsan Stainless Steel	2005-03	Evaluated mechanical properties on ring flange, a component of wind power generating facility following its manufacturing process.
50	Dangjin Thermal Power Plant, Korea East-West Power Co, Ltd. (EWP)	2005-03 ~2006-06	Developed technology to diagnose damage in major facilities of Dangjin Thermal Power Plant and established database for the results
51	Agency for Defense Development(ADD)	2005-03	Evaluated mechanical properties on materials of missile and aircraft. (including the comparison of specification of US aero materials with that of ADD's)
52	Samsung Techwin Co., Ltd.	2005-03	Evaluated mechanical properties on turbine blades (including blades and turbine shafts).
53	GE-PII	2005-04	Evaluated mechanical properties on natural gas pipelines(API X Gr).
54	The Catholic University of Korea	2005-05	Evaluated mechanical properties on the artificial hip joint.
55	Dangjin Thermal Power Plant(Ulsan Thermal Power), Korea East-West Power Co, Ltd. (EWP)	2005-05	Evaluated mechanical properties and residual stress using AIS3000(Turbine casting, IP rotor, ICV pipe)

56	EDF	2005-07	Evaluated mechanical properties on core power generating facilities. – 8 kinds
57	Dangjin Thermal Power Plant (Sandheong Pumped Storage power generation), Korea East-West Power Co, Ltd. (EWP)	2005-07	Conducted safety inspection of power generation facilities for the explosion accident. (mechanical properties evaluation using instrumented indentation technique)
58	EDF	2005-08	Evaluated mechanical properties on major power generating facilities. – 6 kinds
59	NK	2005-08	Evaluated mechanical properties of Pressure vessel of CNGV according to the area and the process.
60	Daewoo Shipbuilding & Marine Engineering Co., Ltd.(DSME)	2005-08	Evaluated mechanical properties on the materials of ship.
61	Korea Aerospace University	2005-09	Measured and evaluated changes in strain hardening rate when manganese steel is welded onto the railroad.
62	ExxonMobil	2005-09	Evaluated residual stress evaluation on welded area of API material (X65, X80) with friction Stir Welding (FSW) (compared with X-ray diffraction method)
63	Dangjin Thermal Power Plant (Sandheong Pumped Storage power generation), Korea East-West Power Co, Ltd. (EWP)	2005-09	Evaluated mechanical properties on "TBN/Thrust bearing shaft using instrumented indentation technique.
64	Daewoo International	2005-10	Evaluated mechanical properties on each section according to the size of extruded material.
65	Korea Railroad Research Institute (KRRRI)	2005-11	Entered technical alliance regarding residual stress and participated in task project
66	ExxonMobil	2005-11	Evaluated residual stress on welded area of thick-walled pipeline with multi-layered welding.
67	Korea Railroad Research Institute (KRRRI)	2005-11	Measured axial stress on railroad - measured residual stress.
68	Korea Railroad Research Institute (KRRRI)	2005-12	Measured change in mechanical properties with strain hardening layer of railroad.
69	Gyeongsang National University	2005-12	Evaluated residual stress on welded area with different kinds of stainless steel welds.
70	Seoul National University	2006-01	Evaluated strength of welded area of DP590 weldment(Line array)
71	Chungcheong site, Korea Rail Network Authority	2006-02	Evaluated tensile properties on the support beam of railroad with non-destructive method - along with faulty examination and inspection on new materials.
72	Aero Technology Research Institute	2006-02	Evaluated tensile properties on F-5 structural materials. (AL7075 / AISI 4330)
73	Agency for Defense Development(ADD)/Doowon Heavy Industries	2006-03	Evaluated residual stress and tensile properties on welded area with welding of two different metals of STS 630/304.
74	Korea Electric Power Research Institute(KEPRI)	2006-03	Evaluated residual stress on A335 P92 welded pipe.
75	Samsung SDI	2006-04	Evaluated residual stress caused by dielectric junction on PDP board.

76	LG Electronics	2006-04	Evaluated minute residual stress on damaged copper pressure vessel and analyzed cause of the damage.
77	Hyundai Motor Company	2006-05	Evaluated tensile properties on materials of auto parts.
78	Korea Electric Power Research Institute(KEPRI)	2006-05	Compared X-ray evaluation results of A335 P92 welded pipe before and after the heat treatment(removal of residual stress).
79	Korea East-West Power Co, Ltd. (EWP)	2006-05	Evaluated and compared strength on materials used for boiler depend on degradation.
80	Hyundai Motor Company	2006-06	Evaluated residual stress on the engine cylinder and analyzed the causes.
81	Cheil Industry Inc.(Samsung CII)	2006-08	Evaluated mechanical properties on new polymer-based material.
82	Shell	2006-08	Evaluated strength on API 5C # casing and tubing pipes.
83	LG R&D (LG Research & Development)	2006-08	Evaluated characteristic properties on bulkhead structure of glass board.
84	Wolseong Nuclear Power Site	2006-08	Evaluated and analyzed properties on welded area of turbine materials.
85	Iljin Display	2006-09	Evaluate residual stress on engine block of automobile.
86	Samsung Electronics Co., Ltd (LCD business department)	2006-10	Evaluated reliability on LCD frame support moldings.
87	Dongseo Machine & Tools	2006-11	Evaluate residual stress on engine block of automobile.
88	LG Philips	2006-12	Evaluated residual stress on structure of glass board.
89	FRONTICS-TWI Project	2007-01	Evaluated mechanical properties on 10 core materials.
90	LG R&D (LG Research & Development)	2007-04	Evaluated residual stress on welds/joints of refrigerator pressure vessel.
91	Korea University	2007-04	Evaluated residual stress on welded area of different weld materials.
92	Korea Institute of Machinery and Materials(KIMM)	2007-04	Evaluated residual stress on different weld materials depend on the heating conditions.
93	Korea Gas Safety Corporation (KGS)	2007-05	Evaluated reliability on core facilities(piping) of LG Petrochemical.
94	Donga Automotive	2007-05	Evaluated residual stress on new auto disc that developed.
95	Research Institute of Industrial Science & Technology(RIST)	2007-08	Evaluated residual stress on bending specimen of Al70 series.
96	Samsung Construction Co., Ltd	2007-10	Evaluated residual stress on welded seam area of cable pipe before and after heat treatment.
97	Korea Institute for Defense Analyses	2007-10	Evaluated residual stress on laser-welded area of 2 kinds of SUS material.
98	CJT	2007-11	Evaluated residual stress on v-groove welded area of 2 kinds of SUS material.
99	Alcoa	2007-11	Evaluated residual stress on welded area of Plate.
100	Corentec	2007-11	Evaluated residual stress on domestic and foreign bio metals.

101	KLES	2007-12	Evaluated residual stress on top and bottom surface of different welding materials.
102	Hannam University	2007-12	Evaluated thermal stress on automobile molded steel (boron steel(22MnB5)).
103	Pusan National University	2008-01	Evaluated residual stress on core parts of gear depend on the transformation.
104	Doosan Heavy Industries and construction Co., Ltd	2008-02	Evaluated residual stress on steam generator of nuclear power plant.
105	Gyeongsang National University	2008-02	Evaluated residual stress on materials for defense weapon(****).
106	Sampo Industrial	2008-03	Evaluated residual stress on pullout copper pipe.
107	Kookmin University	2008-03	Evaluated tensile properties on rolling materials.
108	CS Center, Samsung Electronics CO, Ltd	2008-04	Evaluated residual stress on case of a laptop.
109	Institute of Industrial Technology, Samsung Electronics CO., Ltd	2008-04	Evaluated residual stress on plastic molded of a printer.
110	CS Center, Samsung Electronics CO, Ltd	2008-04	Evaluated residual stress on plastic case of DPD TV.
111	National Forensic Service (NFS)	2008-05	Diagnosed automobile cylinder damage caused by explosion.
112	S-Oil	2008-05	Diagnosed damage on the age degraded 9Cr-1Mo steel and estimated its life time.
113	Korea National University of Transportation & Seoul Metro	2008-05	Diagnosed damage on railroad wheel and evaluated its safety.
114	Shell	2008-06	Measured fracture toughness at low temperature.
115	Vectren	2008-07	Evaluated properties on API material.
116	Hyundai Oilbank Co., Ltd.	2008-07	Evaluated soundness on welded area of valve material.
117	Chosun University	2008-08	Evaluated directional residual stress on the notch tip of SA508 and STL316.
118	National Forensic Service (NFS)	2008-08	Evaluated properties on damaged CNG vessel.
119	POSCO SS & CC	2008-08	Evaluated residual stress on forging shell processing.
120	Korea Electric Power Research Institute(KEPRI)	2008-09	Evaluated residual stress on welded area of cold-rolled plate SUS304.
121	Korea Gas Safety Corporation (KGS)	2008-09	Evaluated properties on CNGV Type II pressure vessel in each step of its production.
122	GTI	2008-10	Evaluated properties on API material(used material).
123	Excelab	2008-10	Evaluated residual stress that caused by laser-welding and peening.
124	Hyundai Rotem Company	2008-11	Evaluated residual stress on welded area of structure before and after heat treatment.
125	POSCO SS & CC	2008-11	Evaluated residual stress on rotor shaft after roughing.
126	POSCO at Gwangyang	2008-11	Demonstrated application of AHSS(Advanced High Strength Steel) technology.
127	NK	2008-12	Evaluated soundness of NGV vessel in each step of its production.
128	Korea University	2009-02	Evaluated properties on a friction weld sample.
129	Dong-Eui University	2009-02	Evaluated properties on advanced high strength steel for automobile.

130	Shell	2009-02	Evaluated fracture toughness on welded area of pressure vessel at low temperature.
131	POSCO at Gwangyang	2009-02 ~2009-03	Evaluated tensile properties on advanced high strength steel (AHSS) for automobile. (until March, 2009)
132	Samsung Electro-Mechanics	2009-03	Evaluated residual stress on the camera lens of a cellular phone.
133	GTI	2009-03	Evaluated degradation and reliability on buried pipeline.
134	Korea Gas Safety Corporation (KGS)	2009-03	Evaluated stress on the pipeline of Pohang city gas.
135	Korea Hydro & Nuclear Power Co, Ltd.	2009-03 ~2009-04	Evaluated weldability on bulkhead structure of New-Gori Nuclear Power Unit 1.
136	Research Institute of Industrial Science & Technology(RIST)	2009-04	Applied IIT to Mg alloy (fault analysis)
137	S-Oil	2009-04	Inspected reactor by using instrumented indentation technique.
138	SK Energy Co., Ltd.	2009-04	Evaluated safety on UC-R2103 Weld overlay.
139	Chung Cheong University (Research Institute of International Certified Test)	2009-05 ~2009-06	Evaluated residual stress on concrete structure of nuclear power plant. (until June, 2009)
140	Agency for Defense Development(ADD)	2009-06	Evaluated properties on high toughness/high strength steel – missile material.
141	Korea Electric Power Research Institute(KEPRI)	2009-06	Diagnosed degradation on turbine facilities at Boryeong Thermal Power Plant.
142	Shell	2009-06	Evaluated fracture toughness on welded area by using IIT.
143	Korea Engineering Plastics Co., Ltd.	2009-07	Evaluated residual stress on POM gear parts.
144	Chung Cheong University (Research Institute of International Certified Test)	2009-08	Evaluated residual stress on concrete structure of nuclear power plant.
145	ExxonMobil	2009-09	Evaluated properties on API X80 & X100 HLAW weld metal.
146	POSCO	2009-09	Evaluated properties on seamless welds of STS 409L Pipe.
147	LG Electronics	2009-09	Analyzed and evaluated residual stress on stress concentrated area of protection film for cellular phones.
148	POSCO	2009-10	Measured and analyzed residual stress on magnesium plate processing.
149	LG Electronics	2009-10	Evaluated stress in the area of stress concentration of plastic molded case for cellular phones.
150	Korea Electric Power Research Institute(KEPRI)	2009-10	Diagnosed degradation on turbine facilities at Dangjin Thermal Power Plant.
151	ExxonMobil	2009-11	Evaluated flow curve on welded area by using micro indenter.
152	Korea Institute of Construction Technology(KICT)	2009-11	Measured mechanical properties of a tunnel lattice girder and established criteria for judgement.

153	Hyundai Motor Company/NK	2009-11	Evaluated residual stress on natural gas vessel of a bus.
154	Korea Electric Power Research Institute(KEPRI)	2009-12	Diagnosed degradation on turbine facilities at Taean Thermal Power Plant.
155	Dongkuk Steel Mill Co., Ltd.	2009-12	Measured residual stress on welding structural steel – applied to manufacturing process
156	ExxonMobil	2010-01	Evaluated properties on API X80 HLAW weld metal.
157	Dongkuk Steel Mill Co., Ltd.	2010-01	Evaluated residual stress on SS400 Plate.
158	Expressway & Transportation Research Institute	2010-01	Evaluated properties on lattice girder.
159	National Forensic Service (NFS)	2010-02	Evaluated properties on damaged crain part.
160	Korea Aerospace University	2010-02	Evaluated properties on aluminium and SUS parts.
161	Korea Electric Power Research Institute(KEPRI)	2010-03	Evaluated properties on turbine Groove at Boryeong Thermal Power Plant.
162	ExxonMobil	2010-04	Evaluated properties on microstructure of dual phase material.
163	POSCO at Gwangyang	2010-04	Diagnosed age degradation on the bark of steel of the blast furnace.
164	Korea Gas Safety Corporation (KGS)	2010-05	Diagnosed the processing facilities of centrifugal casting tube of LG Chem.
165	Jusung Engineering	2010-05	Evaluated residual stress on Al welded area.
166	Korea Engineering Plastics Co., Ltd.	2010-05	Evaluated stress on gear parts.
167	ExxonMobil	2010-05	Evaluated flow strength on dual phase steel.
168	Korea Electric Power Research Institute(KEPRI)	2010-05	Evaluated properties on turbine rotor at Seocheon Thermal Power Plant.
169	ExxonMobil	2010-05	Evaluated flow strength on dual phase steel.
170	Korea Automotive Technology Institute	2010-06	Evaluated properties on automobile steering column part.
171	GS Caltex Oil	2010-06	Conducted safety inspection on facilities of No3 HOU Project.
172	Yeocheon NCC (YNCC)	2010-06	Evaluated properties on the damaged area of Ethylene storage tank.
173	POSCO at Pohang	2010-06	Diagnosed age degradation on the bark of steel of the blast furnace No. 4.
174	Korea Gas Safety Corporation (KGS)	2010-06	Diagnosed reformer tube facilities of GS Caltex.
175	Yeocheon NCC (YNCC)	2010-06	Evaluated and diagnosed stress on the damaged area of Ethylene storage tank.
176	Korea Gas Safety Corporation (KGS)	2010-07	Evaluated tensile properties on reformer steel of GS Caltex.
177	Korea Atomic Energy Research Institute(KAERI)	2010-07	Evaluated residual stress on welded area of two different metals of SA508-SUS316L.
178	Samsung Coming Precision Materials Co, Ltd.	2010-08	Evaluated residual stress on a cellular phone case.
179	Yeocheon NCC (YNCC)	2010-08	Evaluated properties on LP Ethylene storage tank.
180	National Forensic Service (NFS)	2010-08	Conducted evaluation of tensile properties of CNG vessel

181	Korea Gas Safety Corporation (KGS)	2010-12	Evaluated residual stress on hydrogen pipe.
182	University of Ulsan	2010-12	Analyzed mechanical properties(hardness) and structure on 4 kinds of FSSW(Friction Stir Spot Welding) and 6 kinds of FSW(Friction Stir Welding).
183	POSCO	2010-12	Evaluated residual stress on blast furnace no. 4 of POSCO at Pohang.
184	CJT	2010-12	Compared residual stress obtained from neutron diffraction method and IIT.
185	-	2011-01	Evaluated tensile properties on the bridge at Jung-dong IC of Seoul ring road.
186	Kolon	2011-01	Evaluated residual stress with Micro AIS.
187	KEPCO NF	2011-03	Evaluated soundness on welded area of nuclear fuel rod.
188	Sambo Motors Co., Ltd.	2011-03	Evaluated residual stress on the surface of automobile disc material.
189	Aero Technology Research Institute	2011-03	Evaluated tensile properties on the core materials of aircraft.
190	Korea Gas Corporation (KOGAS)	2011-04	Evaluated residual stress on the pipes at Gwaneum Station.
191	KEPCO KPS	2011-04	Evaluated tensile properties on degraded specimen of T91 material.
192	Samsung Construction Co., Ltd.	2011-04	Analyze the effect when post-heat treatment on welded area is not applied.
193	Honam Petrochemical Corporation	2011-04	Conducted safety inspection on the welded area of reactor.
194	National Forensic Service (NFS)	2011-04	Evaluated tensile properties on two specimens.
195	Korea Atomic Energy Research Institute(KAERI)	2011-05	Evaluated residual stress on the welded area of different materials.
196	CJT	2011-05	Evaluating of residual stress of TWI's welding specimen
197	Samsung Total Petrochemicals Co., Ltd. Korea Gas Safety Corporation(KGS)	2011-05	Measured heat affected area of reactor pressure vessel.
198	LG Chem. Ltd	2011-05	Evaluated soundness of pipeline - estimating its life time.
199	ThyssenKrupp(Germany)	2011-05	Evaluated residual stress on Al60 series.
200	Department of Architecture & Architectural Engineering, Seoul National University	2011-06	Evaluated residual stress on welded area of H beam.
201	Samsung Electro-Mechanics Co., Ltd.	2011-06	Result of compression test on Polymer material.
202	Hyundai Engineering & Construction	2011-06	Evaluated soundness on the pipeline of new-Gori nuclear power plant.
203	Korea Atomic Energy Research Institute (KAERI)	2011-07	Evaluated tensile properties on welded area of lattice girder of nuclear fuel rod.
204	Samsung Coming Precision Materials Co, Ltd	2011-07	Evaluated residual stress on ITO material.
205	Inje University	2011-08	Evaluated indentation tensile properties on Yellow Brass (Cu 65%-Zn35%).

206	Hyundai Engineering & Construction	2011-08	Evaluated soundness on welded area of FCAW pipeline at New Kori Nuclear power plant.
207	SK Hynix Inc.	2011-11	Evaluated fracture toughness on the circuit board of semiconductor.
208	National Forensic Service (NFS)	2012-01	Performed strength test on small sized specimens.
209	Research Institute of Industrial Science & Technology(RIST)	2012-01	Performed strength test on automobile gear after heat treatment.
210	Korea Railroad Research Institute (KRRRI)	2012-01	Evaluated tensile properties on 3 kinds of welding pipe.
211	Yonsei University	2012-02	Performed test on strength and elasticity modulus on the cartilaginous tissue of a puppy.
212	Seoul National University	2012-02	Evaluated fracture toughness and tensile strength on a crank shaft for Hyundai motors.
213	KEPCO-KPS	2012-02	Evaluated tensile properties
214	SeAH Steel Corp.	2012-03	Performed strength tests on each area of 9 kinds of API pipe.
215	LG innotek, Ltd.	2012-04	Evaluated residual stress tested by Micro-AIS
216	Ministry of Public Administration and Security/National Forensic Service	2012-04	Tested and produced a jig related to a study of the study.
217	Korea railroad	2012-04	Evaluated residual stress on the train body of KTX Sancheon 3
218	Seoul National University	2012-04	Evaluated fracture toughness and tensile strength on a shaft die for Hyundai motors.
219	Nano-mechanics & Micro-Reliability Lab.	2012-05	Evaluated residual stress
220	LG innotek, Ltd	2012-06	Tested the correction of a indenter
221	Gyemyeong Structure Engineering Corp.	2012-08	Evaluated tensile properties
222	Korea Expressway Corp.	2012-07	Evaluated tensile properties
223	RIST Steel Structure Research	2012-08	Evaluated residual stress
224	Hyundai Heavy Industries	2012-08	Evaluated residual stress and mechanical properties on H32/40V Eng Block
225	Chonnam National University	2012-09	Analyzed database on a blast furnace hearth of the melting furnace
226	Thyssenkrupp Materials Korea Co., Ltd.	2012-09	Evaluated residual stress on a sample
227	Samsung Display Co., Ltd.	2012-10	Evaluated a reliability using Micro-AIS
228	KEPCO-KPS	2012-10	Evaluated residual stress
229	LG innotek, Ltd.	2012-10	Evaluated residual stress using Micro-AIS
230	GE ITALY	2012-10	Evaluated resilience on a dissimilar flange
231	Samsung Corning Precision Materials	2012-12	Evaluated residual stress
232	DONGWON PARTS	2013-01	Evaluated Residual Stress on SUS316 Brazing Welding

233	Korea Electric Power Research Institute	2013-02	Evaluated tensile properties on Combined Cycle Power Plant Unit 1 seoincheon
234	Doosan Heavy Industries and construction Co., Ltd	2013-04	Evaluated Residual Stress in ULJIN #3 RSG
235	KEPCO E&C	2013-04	Evaluated tensile properties and residual stress on Pipe weld of nuclear material
236	Doosan Heavy Industries and construction Co., Ltd	2013-05	Evaluated residual stress on ULJIN Unit 4 steam generator replacement SGR Hot Leg
237	Pusan National University	2013-06	Evaluated residual stress on weld specimen
238	SHINHO METAL	2013-07	Damaged parts STS430 damage analysis for quality inspection
239	ALUX	2013-07	Evaluated residual stress
240	SHINHAN METAL	2013-07	STS430 quality inspection services for the bare tube
241	LG Electronics	2013-08	Evaluated Tensile Properties on Mg-coated panels measuring cell phones
242	LG Electronics	2013-08	Evaluated Tensile Properties and residual stress on Bare tube and flower tube
243	LG Siltron	2013-10	Evaluated Flexural strength and Vickers hardness on the Sapphire wafer specimen
244	Korea Gas Safety Corporation (KGS)	2013-10	Evaluated Integrity on Gimhae formalin reactor
245	UNISON eTech	2013-10	Evaluated Integrity after the heat treatment on rear Bracket Sinwolsung unit2
246	Korea Gas Safety Corporation(KGS)	2013-11	Safety Inspection on OCI Materials refining Monosilane
247	SAMSUNG ELECTRO-MECHANICS	2013-11	Evaluated residual stress using Instrumented indentation test
248	Korea Electric Power Research Institute	2013-11	Calibration of AIS3000,4000
249	SEBANG GLOBAL BATTERY	2013-11	Evaluated tensile properties using Instrumented indentation test
250	HYUNDAI Steel Industries	2013-11	Evaluated tensile properties on acupressure materials Singori unit 1,2
251	SHINHAN METAL	2013-12	Evaluated Micro tensile properties and residual stress
252	KHNP-KORI Nuclear power	2013-12	Filed test using Instrumented indentation test
253	KHNP-KORI Nuclear power	2013-12	Sample test using Instrumented indentation test

254	PILETA	2013-12	Evaluated tensile properties using Instrumented indentation test
255	SEBANG GLOBAL BATTERY	2013-12	Evaluated tensile properties using Instrumented indentation test
256	Hansol SeenTec	2014-02	Evaluated tensile properties using Instrumented indentation test
257	KEPCO	2014-02	Evaluated tensile properties on Combined Cycle Power Seoincheon
258	Seahan vacuum heat treatment	2014-02	Electric discharge processing sample test
259	KRISS	2014-04	Evaluated residual stress using Instrumented indentation test
260	Designmecha	2014-04	Evaluated residual stress of high temperature chamber
261	Doosan Heavy Industries and construction Co., Ltd	2014-05	Evaluated tensile properties on ASEM A479-304 pin etc. 6 types
262	Korea Electric Power Research Institute(KEPRI)	2014-05	Evaluated residual stress using Instrumented indentation test
263	Korea Institute of Machinery and Materials(KIMM)	2014-05	Instrumented indentation test using AIS3000
264	LG Electronics	2014-05	Evaluated residual stress using Micro-AIS on cellphone case
265	KEPCO KPS	2014-06	Evaluated residual stress using Instrumented indentation test
266	HYUNDAI Steel Industries	2014-06	Evaluated tensile properties on acupressure materials Singori unit 3
267	Doosan Heavy Industries and construction Co., Ltd	2014-06	Evaluated tensile properties on acupressure materials Singori unit 3,4
268	Samsung Electro-Mechanics	2014-06	Hardness & modulus of elasticity measurement using Nano-AIS
269	Yonsei University	2014-07	Dog cartilage test - The modulus of elasticity measurement
270	Doosan Infracore	2014-07	Evaluated residual stress using Instrumented indentation test
271	Chosun University	2014-08	Evaluated residual stress using Instrumented indentation test

272	SRC	2014-08	Evaluated residual stress using Instrumented indentation test
273	BEHR	2014-08	Evaluated residual stress using Instrumented indentation test
274	LG Electronics	2014-09	Condensation tube ingredient analysis of Condensation tube and SEM photographing
275	National Forensic Service (NFS)	2014-09	Evaluated tensile properties on annealing specimen
276	LG Electronics	2014-10	Evaluated residual stress on cellphone case
277	SUNGKYUNKWAN University	2014-11	Evaluated residual stress and fracture toughness using Instrumented indentation test
278	Chosun University	2014-11	Evaluated residual stress using Instrumented indentation test
278	Chosun University	2014-11	Evaluated residual stress using Instrumented indentation test
279	Hyundai Steel	2015-01	Evaluated residual stress using Instrumented indentation test
280	POSCO	2015-01	Evaluated residual stress using Instrumented indentation test
281	Excelab	2015-01	Evaluated residual stress using Instrumented indentation test
282	Pukyong national univeristy	2015-02	Evaluated residual stress using Instrumented indentation test
283	LG Electronics	2015-03	Evaluated residual stress on cellphone case
284	LG Electronics	2015-03	Evaluated residual stress on cellphone case
285	Korea Hydro & Nuclear Power Co, Ltd.	2015-04	Evaluated tensile properties (Micro-AIS)
286	LG Electronics	2015-04	Evaluated residual stress on cellphone case
287	Korea Institute of Industrial Technology	2015-04	Evaluated tensile properties on rare earth metals(pellet)
288	LG Electronics	2015-04	Evaluated residual stress on cellphone case
289	hyundai-kefico	2015-04	Evaluated residual stress (Nano-AIS)
290	LG Electronics	2015-04	Evaluated residual stress on cellphone case
291	SK energy	2015-06	Evaluated residual stress on pipes of Lean Amine
292	enesg	2015-08	Evaluated residual stress on welded area of SA508

293	JFE Steel	2015-08	Evaluated tensile properties on carbon-steel
294	LG Electronics	2015-08	Evaluated residual stress on cellphone case
295	LG Electronics	2015-09	Evaluated residual stress on cellphone case
296	Korea Hydro & Nuclear Power Co., Ltd.	2015-09	Evaluated properties on welded area of elbow and nozzle
297	Busan-gas	2015-09	Evaluated stress on pipes of PLP (200A, 400A)
298	LG Electronics	2015-10	Evaluated residual stress on cellphone case
299	Daegu Precision Co., Ltd	2015-10	Evaluated residual stress before and after shot peening
300	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated properties at Hanbit Nuclear Power Site 3
301	BHI	2015-10	Evaluated residual stress on induction heating pipes
302	JFE steel	2015-10	Evaluated tensile properties on carbon-steel
303	LG Electronics	2015-10	Evaluated residual stress on cellphone case
304	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated tensile properties at Hanbit Nuclear Power Site 2
305	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated tensile properties at Hanbit Nuclear Power Site 3
306	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated tensile properties at Wolsong Nuclear Power Site 1
307	Korea Railroad Research Institute (KRRRI)	2015-10	Evaluated tensile properties and hardness (Nano-AIS)
308	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated residual stress at Wolsong Nuclear Power Site 1
309	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated tensile properties at Hanwool Nuclear Power Site 3
310	Korea Hydro & Nuclear Power Co., Ltd.	2015-10	Evaluated RS and TS at Wolsong Nuclear Power Site 1
311	Korea Hydro & Nuclear Power Co., Ltd.	2015-11	Evaluated tensile properties at Hanwool Nuclear Power Site 3
312	Korea Hydro & Nuclear Power Co., Ltd.	2015-11	Evaluated tensile properties at Hanwool Nuclear Power Site 3
313	LG Electronics	2015-11	Evaluated residual stress on cellphone case
314	Seoul National University	2015-11	Evaluated residual stress on pipes at SNU
315	Seoul National University	2015-11	Evaluated residual stress on pipes at SNU
316	Institute for Advanced Engineering	2016-01	Evaluated hardness at Institute for Advanced Engineering

317	Hyundai Engineering & Construction	2016-01	Evaluated residual stress on HUB-RAT- HOLE closing
318	Chung-ang universty	2016-02	Evaluated residual stress on welded area of ST35MnB
319	Ajou university	2016-02	Evaluated residual stress
320	KHNP	2016-03	Evaluated tensile properties and residual stress
321	Samboo metal	2016-05	Evaluated residual stress after heat treatment.
322	enesg	2016-07	Evaluated residual stress on welded area by using instrumented indentation technique.
323	KLSRI	2016-08	Evaluated tensile properties and residual stress
324	Suntechnology	2016-08	Evaluated fracture toughness by using instrumented indentation technique.
325	Korea Atomic Energy Research Institute(KAERI)	2016-09	Evaluated functional testing of equipment in nuclear power plant.
326	Korea Gas Safety Corporation (KGS)	2016-09	Evaluated tensile properties on pipe line
327	Korea Electric Power Research Institute(KEPRI)	2016-09	Evaluated tensile properties on turbine rotor at Taeon Thermal Power Plant.
328	Korea Electric Power Research Institute(KEPRI)	2016-09	Evaluated tensile properties and on turbine rotor at Sam Cheon Po Thermal Power Plant.
329	SK Innovation	2016-10	Evaluated tensile properties and strain hardening rate on ASTM A560
330	HITACHI GE	2016-10	Evaluated residual stress on welded specimen
331	Korea Hydro & Nuclear Power Co, Ltd.	2016-11	Evaluated residual stress on pressurizer surge line at Hanbit Nuclear Power
332	Ajou university	2016-12	Evaluated residual stress on no peening specimen
333	LG Electronic	2016-12	Evaluated residual stress on cellphone case
334	Samsung Electronic	2017-02	Evaluated residual stress on cellphone case
335	LG Electronic	2017-03	Evaluated residual stress on cellphone case
336	Korea Electric Power Research Institute	2017-03	Evaluated tensile properties and on turbine rotor at Sam Cheon Po Thermal Power Plant.
337	Korea Hydro & Nuclear Power Co, Ltd.	2017-03	Evaluated residual stress and tensile properties on SG water pipe at Wolsong Nuclear Power
338	Ajou university	2017-04	Evaluated residual stress on four materials

339	Korea Electric Power Research Institute	2017-06	Evaluated tensile properties and on turbine rotor at Hadong Thermal Power Plant.
340	SUNGKYUNKWAN University	2017-06	Evaluated residual stress on welded area of pressure pipe (SPPS 38) before and after the heat treatment. Evaluated tensile properties and fracture toughness on damaged area of pipe (SPW400)
341	Korea Electric Power Research Institute	2017-06	Evaluated tensile properties and on turbine rotor at Sam Cheon Po Thermal Power Plant.
342	SUNGKYUNKWAN University	2017-07	Evaluated residual stress on welded area of pressure pipe (SPPS 38) before and after the heat treatment. Evaluated tensile properties and fracture toughness on damaged area of pipe (SPW400)
343	Doosan Heavy Industries and construction Co., Ltd	2017-09	Evaluated tensile properties and hardness on specimen of SU309L series.
344	Chosun University	2017-11	Evaluated Residual stress on the surface of spring steel (Micro-AIS)
345	Pomia	2017-11	Evaluated tensile properties on welded zone, roller and flange.
346	Wolseong Nuclear Power Site	2017-11	Evaluated tensile properties on H-beam
347	Excelab	2017-12	Evaluated residual stress using IIT
348	LG Electronics	2018-01	Evaluated vikers hardness on smartphone case
349	Chosun University	2018-01	Evaluated residual stress on spring steel (Micro)
350	KPS	2018-02	Evaluated residual stress on Tube
351	Occupational Safety and Health Research Institute	2018-02	Evaluated tensile properties on M16 bolt
352	Hanwha Total	2018-03	Evaluated residual stress & fracture toughness on Autofrettage Pipe
353	LG Electronics	2018-03	Evaluated vikers hardness on smartphone case
354	KOGAS	2018-04	Evaluated residual stress on main gas pipe at Jinhae-Geoje
355	Korea Electric Power Research Institute	2018-04	Evaluated properties on turbine Groove at Hadong Thermal Power Plant.
356	KOGAS	2018-05	Evaluated residual stress on main gas pipe (Burial pipe) at Jinhae- Geoje
357	Korea Electric Power Research Institute	2018-05	Evaluated properties on turbine Groove at Boryeong Thermal Power Plant.

358	Korea Electric Power Research Institute	2018-06	Evaluated properties on turbine Groove at Busan Thermal Power Plant.
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