# TAKADA CORPORATION COMPANY OVERVIEW

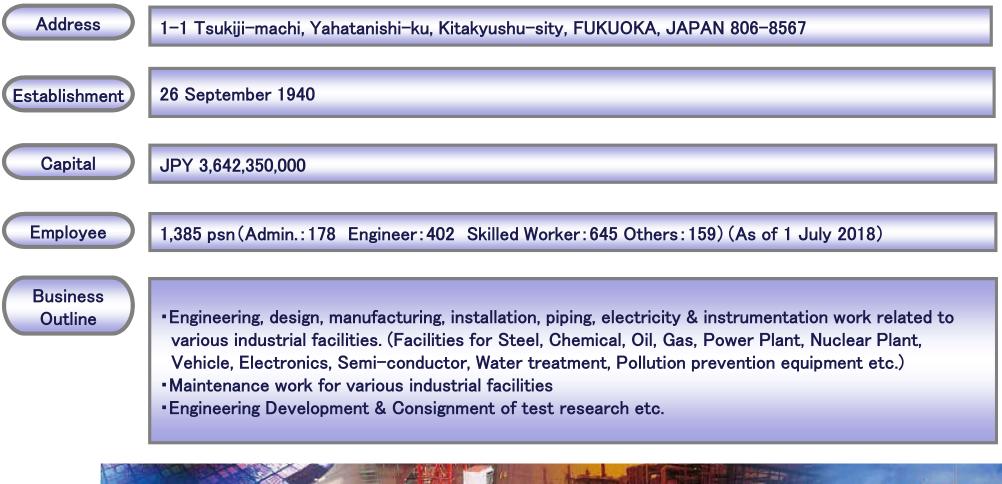
原子カプラ

エレクトロニクズ 関連分野 新規事業

4 Sep. 2018

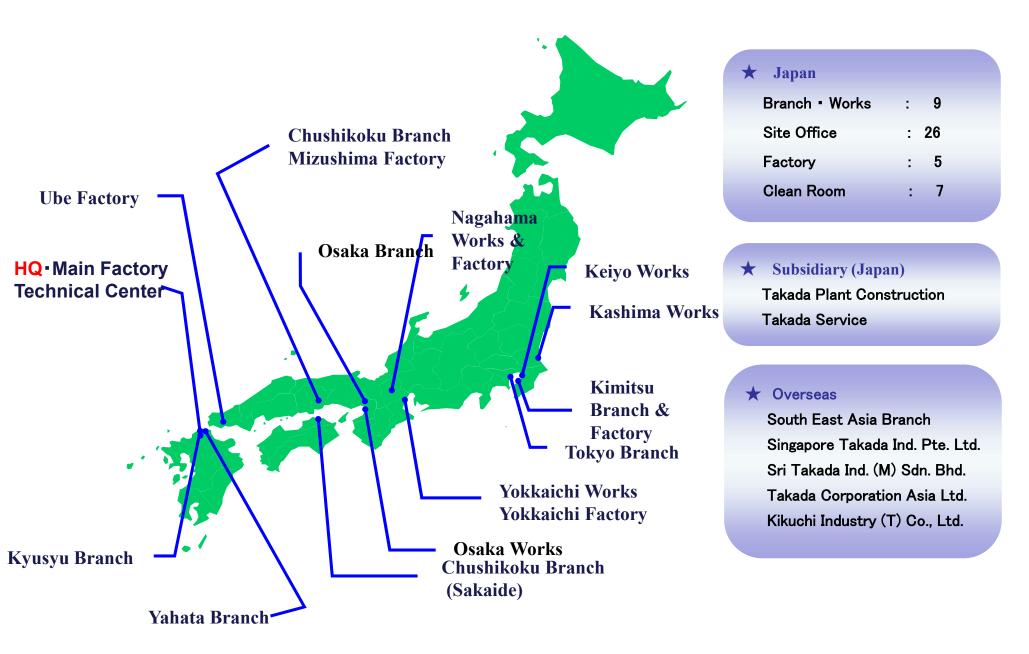
TAKADA

#### **OVERVIEW** 1)





TAKADA CORPORA 2) Network



# 3) ENGINEERING FLOW <Construction Work>

	Planning · Investigation	Process Engineering	Basic Engineering	Detail Engineering	Procurement	Construction	Running Test
C L I E N T	Decision of Basic Requirement Basic Policy Products Item Volume of Products Scale of Facility Operation Planning (Method + Staff) Budget Estimation Schedule	Decision of Process Requirement <ul> <li>Data of Basic Engineering</li> <li>Requirement of Process Engineering</li> <li>Document of Process Engineering</li> </ul>	Decision of Basic Engineering Requirement • Requirement of Basic Engineering • Document of Basic Engineering • Arengement of Budget • Application to Gov.	Decision of Detail Engineering Requirement • Inform Requirement of Detail Engineering • Agreement of Document of Detail Engineering • Consideration of Vender • Acceptance of Vender	Procurement Supply Item • Order Supply item • Test for acceptance • Delivery Control	Acceptance of Construction • Attendance to construction & test • Test by Government • Acceptance of Construction	Running Test • Arrangement • Planning Running test • Attendance Running test • Tet operation
T A K A D A	Cooperation for Basic Investigation - Land Requirement (Land Investigation) - Requirement of Law - Requirement for Environment - Requirement of Social Infrastructure (Traffic, Labor force, Distribution etc.) - Analysis of Current situation	Cooperation for Process Engineering Drawing   Process Flow Balance of Material Schedule Planning of Worker for Construction Consideration Electrical Equipment, Control System, Instrument Equipment Lay-out Plan Planning for operation	Cooperation for Basic Engineering Document Basic Engineering & Planning for Civil, building equipment, piping, electrical, instrumentation, control system Work Schedule Estimation Document for application to government	Detail Engineering Document • Make detail engineering for civil. Building, equipment, piping, electrical, instrumentation, control system, insulation, • Detail Estimation • Plan for procurement & specification	Procurement of Equipment etc. • Survey vender • Quotation inquiry • Negotiation • Order of purchasing item • Test for acceptance • Delivery Control • Test of Completed products	Construction Work  Construction manual Test manual Civil work Building work Installation Work Fiping Work Electrical Work Instrumentation Work Control System work Insulation Work Painting Work	Running Test • Arrangement • Running test • Attendance operation & training operation • training • Inspection report • Operation manual • As build ducument









#### Sample of Construction Work (Work Record)

#### <Steel Plant>

- Exhaust Heat Recovery Facility Test Equipment Production Work
- · Iron oxide dehydration / drying facility reinforcement work

#### <Pharmaceutical Plant>

- Pharmaceutical manufacturing plant Alcohol supply facility construction
- Plasma fractionation formulation renewal construction

- <Chemical & petrochemical Plant>
- Phenol production facility reinforcement work
- Construction work of ultra deep desulfurization equipment for diesel fuel

#### <Food Plant>

- Nigari manufacturing facility construction
   Food oil raw material storage
   Discharge
- facility construction

#### <Fine chemical Plant>

- $\cdot$  Construction work of waste plastic recycling equipment
- $\cdot$  Film manufacturing facility construction work

#### <Overseas>

- Increase in production of organic compounds (Singapore)
- Construction work on phosphor reprocessing plant (Singapore)

# 4) Major Construction Project (2017 ~ 2018)

Industry Type	Type of Plant	Туре	Scope			Number of Equipment						
muusuy rype			Equip.	Civil	Mecha.	Elec.	Instru.	Vessel	Heat Ex.	Agitator	Pump	Others
Chemical	Alcohol Additive Plant	Construction	0	-	0	—	—	32	16	12	28	15
	Nitric Acid Plant	Revamp	0	0	0	0	0	22	14	_	20	12
Material	Quartzite Powder Plant	Construction	0		0	—	—	14		8	10	19
Oil	Distillation Plant	Revamp	0	0	0	0	0	2	2	_	4	2
Environment	Carbon Dioxide Plant	Construction	0	_	0	_	_	_	_	_	_	5

## 5) Other Major Project (Piping & Installation Work)

		Unit : Million Yen)		
Type of Plant	Completion Year	Approx. Cost		
LNG Base	2014	200		
Synthetic Zeolite Plant	2014	180		
Air Separation Unit Facility	2014	640		
Carbon Fiber Plant	2015	410		
Non-Freon Insulation Plant	2016	200		
Carbon Dioxide Storage Plant	2016	500		
Heavy Oil Pipe Line	2016	190		
Heavy Oil Receiving Facility	2016	150		
Cyclohexane Plant	2017	190		
Nickel Powder Plant	2017	150		
Hydrogen Plant	2017	130		
Diphenyl Carbonate Plant	2017	430		
Power Plant	2017	300		
Secondary Smelting Facility	2018	440		
Acrylonitrile Plant	2018	160		
Acrylic Acid Ester Plant	2019	350		

# 6) Overseas Work Experience

## Singapore

Industry Type	Project Name	Schedule	Work Experience
Chemical	ZEON S1101 Project	12/1~13/5	Fab. & Inst'l of Piping, Ducts & Supports
Chemical	PCS 3SB Plant Piping Works	13/1~14/1	Fabrication & Installation of Piping
Chemical	Prime Evolue 2MX Project Piping Works	13/7~15/9	Fab. & Inst'l of Underground Piping & Aboveground Piping
Chemical	Aurora – Eos Project Above Ground Piping	15/6~17/6	Fab. & Inst'l of Piping, Supports

### Malaysia

Industry Type	Project Name	Schedule	Work Experience
Chemical	TPC1 Z-271 Piping Work	13/2~13/8	Piping Work
Chemical	HK Line Project	15/4~16/1	Civil, Equipment Fab., Installation, Piping
Chemical	ASEAN Project	16/11~18/04	Piping Work, Installation
Chemical	BG-2 Project	17/2~18/1	Equipment Fab. & Installation, Piping

## Thailand

Industry Type	Project Name	Schedule	Location
Natural Gas	Natural Gas Metering & Regulating Station Project Thai Ceramic	~2014	Civil & Piping Work
Natural Gas	Natural Gas Pipeline Metering & Regulating Station Project for Supurb Power	~2015	Civil & Piping Work
Natural Gas	Natural Gas Distribution Pipeline for International Refreshment	~2016	Civil & Piping Work
Natural Gas	Natural Gas Pipeline Project for PTT NGV Chokdee	~2017	Civil & Piping Work