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|------|---|----|---|--|

# FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

| 1.   | Manufacture        | d and d  | certifie | d by _              | Wuxi<br>Pa            | Zhicheng B<br>k,B Zone Y   | iochemic<br>angjianT | cal Engin<br>Fown,Xis | eering<br>han Dis | Equipment C<br>strict, Wuxi Ci<br>(Name and add | itv. Jianası        | J Province                | Road Mack<br>214108 Ped | ninery Eq<br>ople's Re | uipment<br>public of     | Industr<br>China. | rial |
|------|--------------------|----------|----------|---------------------|-----------------------|----------------------------|----------------------|-----------------------|-------------------|---|---------------------|---------------------------|-------------------------|------------------------|--------------------------|-------------------|------|
| 2.   | Manufacture        | d for    |          |                     |                       |                            |                      |                       |                   | Not know  | vn                  | racturer)                 |                         |                        |                          |                   |      |
| 3.   | Location of i      | nstallat | ion _    |                     |                       |                            |                      |                       | (Nan              | Not kno   | own                 |                           |                         |                        |                          |                   |      |
|      |                    |          |          |                     |                       |                            |                      |                       | He:               | (Name and a at exchanger                        |                     |                           |                         |                        |                          |                   |      |
| 4.   | Туре               |          | (Horizo  | Vertice             | cal<br>cal, or sphere | )                          | (O                   | il/steam              | heat ex           | changer 621<br>r, jkt. vessel, heat             | B.2)(19-X-          | 852)                      |                         |                        | 21-26                    |                   |      |
|      |                    | N        |          | ornal, vortic       | out, or opinere       |                            | 7C21A19              | (Tank,<br>9-00 Rev    |                   | r, jkt. vessel, neat                            |                     |                           | (N                      | lanufacturer           |                          | nber)             |      |
|      |                    | (CF      | RN)      |                     |                       |                            | (Drawing             |                       | v. 1              |   | 15<br>(National Boa |                           |                         | (                      | 2021<br>Year built)      |                   |      |
| 5. / | ASME Code          | Section  | n VIII,  | Div. 1              | [Edition :            | 2019 Ed<br>and Addenda, if | ition                | (data)1               |                   |   | IA .                |                           |                         |                        | NA                       |                   |      |
| Ite  | ms 6–11 ind        | l. to be | com      | pleted fo           |                       |                            |                      |                       |                   | Gode Ca   | se number)          | rs or chaml               | [Sp<br>her of multic    | becial servic          | e per UG-12              | 20(d)]            |      |
|      |                    |          |          | course(s)           |                       |                            | 3                    |                       |                   | (b) Overall                                     |                     | o, or oname               |                         | 914mm                  | esseis.                  |                   |      |
|      | Co                 | ourse(s) | )        |                     | Ma                    | terial                     | Thick                | kness                 | T                 | Long. Joint (Ca                                 |                     | Circum .                  | loint (Cat. A, I        |                        | Heat 1                   | reatme            | nt   |
| No.  | Diamet             | er       | Le       | ength               |                       | /Grade<br>「vpe             | Nom.                 | Corr.                 | Туре              | Full, Spot                                      |                     | Туре                      | Full, Spot,             | Eff.                   | Temp.                    | Tir               |      |
|      | See attac          | hed      |          |                     | OI .                  | урс                        |                      |                       |                   | None  |                     |                           | None                    |                        | Tomp.                    | + "               | iic  |
| 1    | form U-4<br>1 of 2 |          |          |                     |                       |                            |                      |                       |                   |   |                     |                           |                         |                        |                          |                   |      |
|      |                    |          |          |                     |                       |                            |                      |                       |                   |   |                     |                           |                         |                        |                          |                   |      |
|      |                    |          |          |                     |                       |                            |                      | Body                  | Flanges           | on Shells                                       |                     |                           |                         |                        |                          |                   |      |
| No.  | Туре               | ID       |          | OD                  | Flange                | Min Hub                    |                      |                       | How               |   |                     |                           | Boltii                  | ng                     |                          |                   |      |
| IVO. | Туре               | ID       |          | OD                  | Thk                   | Thk                        | Materia              | al I                  | tached            | Location  | Num & S             | ize i                     | olting<br>aterial       | Washer<br>(OD, ID, th  | nk)                      | Washe             |      |
| NA   |                    |          |          |                     |                       |                            |                      |                       |                   |   |                     |                           |                         | (00, 10, 11            | iik)                     | Wateria           |      |
| 7. F | leads: (a)         |          |          | /M-4                |                       | NA                         |                      |                       |                   | (b)   |                     |                           | N                       |                        |                          |                   |      |
|      | Location           |          |          | kness               |                       | , grade or type)           | (H.T. — tir          | me and tem            | p.)               |   | (N                  | Naterial spec. n          | number, grade o         | r type) (H.T.          | — time and               | d temp.)          |      |
|      | (Top,              | '  -     | THIC     | Kiless              |                       | Radius                     | Elliptio             | call                  | onical            | Hemispherica                                    | ll Flat             | Side to                   | Pressure                |                        | Category                 | / A               |      |
|      | Bottom,<br>Ends)   |          | Min.     | Corr.               | Crowr                 | Knuckle                    | Ratio                | 0 1                   | Apex<br>Angle     | Radius  | Diameter            | Convex                    | Concave                 | Туре                   | Full, S<br>Non           |                   | Eff. |
| (a)  | NA                 |          |          |                     |                       |                            |                      |                       |                   |   |                     |                           |                         |                        |                          |                   |      |
|      | T                  |          |          |                     |                       |                            |                      | Body F                | langes o          | on Heads  |                     |                           |                         |                        |                          |                   |      |
|      | Location           | Ту       | ре       | ID                  | OD                    | Flange<br>Thk              | Min Hul<br>Thk       | b Ma                  | aterial           | How<br>Attached                                 | Num & Si            | ize Be                    | Bolting Bolting         | ng<br>Washer           |                          | Washer            |      |
| (a)  | NA                 |          |          |                     |                       |                            |                      |                       |                   | , maorida                                       | - Nulli & Si        | Ma                        | aterial (               | OD, ID, th             | k)                       | Material          |      |
| 8. T | ype of jacke       | t        |          |                     |                       | NA                         |                      |                       |                   | Jacket closure                                  |                     |                           |                         | JA                     |                          |                   |      |
| If   | har give dir       | noneier  | ao: if h | oltod da            |                       |                            |                      |                       |                   | additor diddard                                 |                     |                           | escribe as ogee         |                        | oar, etc.)               |                   |      |
|      | bar, give dir      | 1.2MF    |          | oited, des          | 0.1MI                 |                            | max. temp            | 22                    | 20℃               | 220°  | N.                  |                           |                         | 40°C                   |                          | 4.084             |      |
|      |                    | (Intern  | al)      |                     | (Extern               |                            | nax. temp            |                       | ternal)           | (Extern   |                     | design metal              | temp                    | -10℃                   | _ at _                   | 1.2MF             | -a   |
| 10.  | mpact test         |          |          |                     | [Ind                  | No, P                      | er UHA-              | 51(d)(e)(             | h)                | stedì   |                     | at te                     | est temperatu           | re of                  | N.                       | ٩                 |      |
| 11.  | Hydro., pneu       | ., or co | mb. te   | est pressu          |                       | Hydro. Tes                 |                      |                       |                   |   | of test             |                           |                         | NA                     |                          |                   |      |
| Item | is 12 and 13       | to be    | comp     | leted for           | tube secti            | ons.                       |                      |                       |                   |   |                     |                           |                         |                        |                          |                   |      |
|      |                    |          |          |                     |                       |                            |                      |                       |                   |   |                     |                           |                         |                        |                          |                   |      |
| 12.  | Tubesheet          |          |          | -240 340<br>& Botto |                       | 79                         | 0mm/790<br>(O.D.)    |                       |                   | 40mm/40m  |                     | 0                         |                         |                        |                          |                   |      |
|      |                    | [Stat    |          | (material s         |                       | [Diamet                    | er (subject          |                       |                   | (Nominal) (Nominal thickne                      |                     | Omm/Omm<br>(Corr. allow.) |                         | Welde<br>Attachment    | ed/Welde<br>(welded or b |                   |      |
|      |                    | [Flo     | ating (n | NA<br>naterial spe  | ec. no.)]             |                            | NA<br>(Diameter      | -)                    |                   | NA<br>(Nominal thickne                          | 255)                | NA<br>(Corr. allow.)      |                         | / / · · ·              | NA                       |                   |      |
| 13.  | Tubes              | S        | A-213    | 3 TP304             | ·L                    |                            | 19.05mr              | ,                     |                   | 1.65mm  | ,                   | 569 pcs                   |                         |                        | achment)<br>(L=3000r     | mm)               |      |
|      |                    | (Materia | I spec.  | no., grade          | or type)              |                            | (O.D.)               |                       | Cl                | (Nominal thickness                              | nnj                 | (Number)                  | 724440                  |                        | straight or U            |                   |      |
|      |                    |          |          |                     |                       |                            |                      |                       | 7                 | 021. 12   | V                   |                           | 1,20                    |                        |                          |                   |      |
|      |                    |          |          |                     |                       |                            |                      |                       | ~                 | 112.  |                     |                           |                         | 22                     | 202                      |                   |      |

FORM U-1

|        |                               |           |          |         |               |                     |               |       |                     | FORIV                    |                            |        |         |                  |              |                     | age         |                   | of       |         | 3      |
|--------|-------------------------------|-----------|----------|---------|---------------|---------------------|---------------|-------|---------------------|--------------------------|----------------------------|--------|---------|------------------|--------------|---------------------|-------------|-------------------|----------|---------|--------|
| Manu   | factured by<br>facturer's S   | orial N   |          |         | \\/7/         | A21-26              |               |       |                     |                          | mical Engir                |        |         |                  |              |                     |             |                   | 157      |         |        |
| Mariu  | ilaciulei S S                 | enai ivi  | o        |         | VVZ           | 121-20              |               | _ (   | KIN                 |                          | NA                         |        |         | Nati             | onai Boar    | d No                |             |                   | 157      |         |        |
|        |                               |           |          |         |               |                     |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        |                               |           |          |         |               |                     | _             |       |                     | s or chann               | els of heat                | excl   | hange   | ers.             |              |                     |             |                   |          |         |        |
| 14. \$ |                               |           | ber of c | ourse(  | s)            |                     |               |       |                     |                          | _ (b) Ove                  | rall I | ength   |                  |              | 27mm/4              |             | n (Top            | /Bottom  | )       |        |
|        | Cou                           | rse(s)    |          | -       |               | aterial<br>c./Grade | T             | hickr | ness                | Long                     | Joint (Cat.<br>Full, Spot, | A)     |         | Circ             |              | (Cat. A, B          |             |                   | Heat 7   | reatm   | ent    |
| No.    | Diamet                        | er        | Lengt    | h       |               | Туре                | Noi           | m.    | Corr.               | Туре                     | None None                  | E      | Eff.    | Тур              | ре           | Full, Spot,<br>None | Eff         | f.                | Temp.    |         | Γime   |
| 1      | I.D.<br>680mi                 | m         | 427m     | m       | SA-           | 240 304             | 6m            | m     | 0mm                 | 1                        | Spot                       | 0.     | .85     | 1/Man.<br>Fig. 2 |              | Spot/NA             | 0.8<br>N    | 85/<br>A          | NA       |         | NA     |
| 2      | I.D.<br>680mi                 | m         | 427m     | m       | SA-2          | 240 304             | 6m            | m     | 0mm                 | 1                        | Spot                       | 0.     | .85     | 1/Man.<br>Fig. 2 |              | Spot/NA             | 0.8<br>N    |                   | NA       |         | NA     |
|        |                               |           |          |         |               |                     |               |       | В                   | ody Flange               | s on Shells                |        |         |                  |              |                     |             |                   |          |         |        |
| No.    | Туре                          | ID        | 0        | D       | Flang         |                     | n Hub<br>Thk  | Ма    | aterial             | How<br>Attached          | Locatio                    | n      | Nim     | 8 0:             | Вс           | Bo<br>Iting         | olting<br>V | Vasher            |          | Wash    | ner    |
|        |                               |           |          | -       | 1116          |                     | TIIK          |       |                     | Allached                 |                            |        | Nui     | m & Size         |              | terial              |             | , ID, th          |          | Mate    |        |
| 1      | FM                            | 695<br>mm | 79<br>m  |         | Nomii<br>65mi |                     | NA            |       | A-182<br>304        | Welded                   | Тор                        |        | M16     | 24&<br>3X155mm   | SA-1         | 93 B8               | 17          | .5/T3.5           | -        | SA-240  | 304    |
|        |                               |           |          |         |               |                     |               |       |                     |                          |                            |        |         |                  |              |                     |             | (mm)<br>.43.5/I.I | D.       |         |        |
| 2      | FM                            | 695<br>mm | 79<br>m  |         | Nomii<br>65mi |                     | NA            |       | 304                 | Welded                   | Тор                        |        | M16     | 24&<br>8X155mm   | SA-1         | 93 B8               | 17          | 7.5/T3.5<br>(mm)  |          | A-240   | 304    |
| 15. H  | Heads: (a)                    | _To       |          |         |               |                     |               |       | VHT                 | id temp.)                | (                          | b)     | В       |                  |              | 04 Cold             | formi       | ing, NO           |          |         | )      |
|        | Location                      | $\top$    | Thic     | kness   |               | R                   | adius         |       |                     | T 0i                     | .                          |        | T       | ,                |              | o Pressur           |             |                   | Catego   |         |        |
|        | (Top,<br>Bottom,<br>Ends)     |           | Min.     | (       | Corr.         | Crown               | Knuck         | cle   | Elliptical<br>Ratio | Conica<br>Apex<br>Angle  | Hemisp                     |        |         | Flat<br>ameter   | Convex       |                     |             | Туре              | Full, S  | Spot,   | Eff.   |
| (a)    | Тор                           |           | 5mm      | (       | 0mm           | R 680<br>mm         | R 68          |       | NA                  | NA                       | N/                         | 4      |         | NA               | No           | Yes                 | 5           | S                 | Fu       | II      | 0.85   |
| (b)    | Bottom                        |           | 5mm      | (       | 0mm           | R 680<br>mm         | R 68          |       | NA                  | NA                       | N/                         | 4      |         | NA               | No           | Yes                 | 3           | S                 | Fu       | H       | 0.85   |
|        |                               |           |          |         |               |                     |               |       | В                   | ody Flange:              | s on Heads                 |        |         |                  |              |                     |             |                   |          |         |        |
|        | Location                      | Ту        | ре       | ID      |               | OD                  | Flange<br>Thk |       | Min<br>Hub          | Material                 | How<br>Attache             | , d    | Nim     | m & Size         | Вс           | Bo<br>Iting         | olting<br>V | Vasher            |          | Wash    | ner    |
| , ,    |                               |           | +        |         |               |                     |               | +     | Thk                 |                          | Attache                    | -      | Nul     | 111 & 312e       | Ma           | terial              | (OD         | ), ID, th         | k)       | Mate    | rial   |
| (a)    | NA<br>MAWP                    | 0.6N      | MPa      |         |               | 0.1                 | ot.           |       | toman               | 220℃                     |                            | 220    | °C      | Mi- d            |              | -1.4                |             | 10℃               |          | 0.6     | MPa    |
| 10. 1  |                               | (Inter    |          | -       | (             | (External)          | at i          | шах.  | temp                | (Internal)               |                            | Exter  |         | IVIIN. d         | esign met    | ai temp.            | _           | .10℃              | _ at .   | 0.0     | IVIFA  |
| 17. l  | mpact test                    |           |          |         |               | [Indicate           | No, P         | er U  | HA-51(d             | )(e)(h)<br>ent(s) impact | tested]                    |        |         |                  | at te        | st temper           | ature o     | of                | 1        | IA_     |        |
| 18. F  | lydro., pneι                  | ı., or co | omb. tes | st pres | sure _        |                     |               |       |                     | a (Horizon               |                            | Pro    | oof tes | st               |              |                     | N           | Α                 |          |         |        |
| 19. N  | lozzles, ins                  | pection   | , and sa | afety v | alve op       | enings:             |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        | urpose                        |           | Diam     | eter or |               |                     |               |       | Material            |                          | Nozzle '                   | Thick  | kness   | Rein             | forcemen     | , A                 | ttachn      | nent De           | etails   |         | cation |
| ,      | t, Outlet,<br>iin, etc.)      | No.       |          | ize     |               | Туре                | 1             | Vozzl | le                  | Flange                   | Nom.                       |        | Corr    |                  | 1aterial     |                     | ozzle       | F                 | lange    |         | pen.)  |
| See    | attached                      |           |          |         |               |                     |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        | rm U-4<br>e 2 of 2            |           |          |         |               |                     |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        | upports: SI                   | kirt      | N/       | A       | Lugs          | 5 4                 | 1             | Leg   | s N                 | IA Oth                   | ners                       |        | 7 Lift  | ting lugs        |              | Attach              | ed          |                   | Rema     | ks 7    |        |
|        | Manufacture                   |           |          | Repo    |               |                     | tified and    |       | ed by Cor           |                          | Inspectors                 |        | (De     | escribe)         | d for the fo | ollowing ite        | ems of      | f the rep         | (Where a | nd how) |        |
| _      |                               |           |          |         | ,             |                     |               |       | ,9                  | ,                        | NA                         |        |         |                  |              |                     |             |                   |          |         |        |
|        | Remarks<br>1, <b>Impact</b> 1 | est ex    | empte    | d per   | UHA-          | 51(d)(e)(           | h).           |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        | 2, PWHT a                     | are ex    | empted   | d by L  | JHA-32        | 2.                  |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        | 3, The safe<br>4, For eac     |           |          |         |               |                     |               |       |                     |                          |                            |        |         |                  |              |                     |             |                   |          |         |        |
|        |                               |           |          |         |               |                     |               |       |                     |                          | neat exchar                | nger   | S.      |                  |              |                     |             |                   |          |         |        |
|        | 6,The cha                     | nnel fla  | ange g   | asket   | s:O.D.        | 721/I.D.            | 695X3m        | ım,G  | SARLOC              | K 3510,2                 | ocs.                       | _      |         |                  |              |                     |             |                   |          |         |        |
| _      | 7,4 Lifting                   | lugs w    | /elded   | to the  | loph          | nead and            | bottom        | cha   | nnel she            |                          | rs welded                  |        |         |                  |              | _                   |             |                   | l. cod   |         |        |

2021. 12. 22 Delember 22, w2

**WORPAR** FORM U-1 Page 3 of 3 Wuxi Zhicheng Biochemical Engineering Equipment Co., Ltd. Manufactured by WZA21-26 Manufacturer's Serial No. NA National Board No. CERTIFICATE OF SHOP COMPLIANCE We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number Expires Sept. 21, 2022 Wuxi Zhicheng Biochemical Engineering Signed Chankensonn Date 2021. 12.22 Name Equipment Co., Ltd. (Manufacturer) CERTIFICATE OF SHOP INSPECTION I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by LRQA Verification Limited UK of have inspected the pressure vessel described in this Manufacturer's Data Report on December 22, state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection. December 22, 2021 Commissions \_ Signed Date Jiangang Wang Al Commission No.: 14743 (National Board Authorized Inspector Commission number) CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE We certify that the statements in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number Expires Name Date

#### CERTIFICATE OF FIELD ASSEMBLY INSPECTION

(Assembler)

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by have compared the statements in this Manufacturer's Data Report with the described pressure vessel of , not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a . By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or hydrostatic test of implied concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Signed \_\_\_ Commissions (Authorized Inspector) (National Board Authorized Inspector Commission number)

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#### FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

| 1. Mar | nufactured and co       | ertified by                     | Wuxi Zhicheng B<br>Park,B Zone Y | iochemica<br>′angjianTo | ıl Enginee<br>wn,Xisha | n District. | Wuxi City, Jia                        | angsu P    | rovince 214              | oad Machin<br>1108 Peopl | ery Equi<br>e's Repu | ipment Inc<br>ublic of Ch | dustrial<br>ina. |
|--------|-------------------------|---------------------------------|----------------------------------|-------------------------|------------------------|-------------|---------------------------------------|------------|--------------------------|--------------------------|----------------------|---------------------------|------------------|
| 2. Mar | nufactured for          |                                 |                                  |                         |                        |             | me and address of<br>Not known        |            | urer)                    |                          |                      |                           |                  |
| 3. Loc | ation of installation   | on                              |                                  |                         |                        |             | address of Purch Not known            | iaser)     |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             | exchanger                             |            |                          |                          |                      |                           |                  |
| 4. Typ | e<br>                   | Vertice<br>(Horizontal, vertice |                                  | (O                      | il/steam h             | eat excha   | anger 621B.2)<br>or, heat exch., etc. | (19-X-8    | 52)                      | (Man                     | WZA2                 | 1-26<br>serial number     | r\               |
|        |                         | NA                              |                                  | XZC21A19                | 9-00 Rev.              |             |                                       | 157        |                          |                          | 2                    | 2021                      |                  |
| Data F | Penort                  | (CRN)                           |                                  | (Drawing r              | number)                |             | (Nati                                 | onal Board | i number)                |                          | (Ye                  | ar built)                 |                  |
| Ite    |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
| Nun    | nber                    |                                 |                                  |                         |                        | Re          | marks                                 |            |                          |                          |                      |                           |                  |
| Iter   |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
| Sh     | ell:<br>                |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        | Course(s)               |                                 | Material                         | Thick                   | kness                  | Lo          | ng. Joint (Cat. A                     | 4)         | Circum. J                | oint (Cat. A,            | B, & C)              | Heat T                    | reatment         |
| No.    | Diameter                | Length                          | Spec./Grade<br>or Type           | Nom.                    | Corr.                  | Туре        | Full, Spot,<br>None                   | Eff.       | Туре                     | Full, Spot,<br>None      | Eff.                 | Temp.                     | Time             |
| 1      | I.D.680mm               | 1500mm                          | SA-240 304                       | 6mm                     | 0mm                    | 1           | Spot                                  | 0.85       | 1/<br>Fig.UW-<br>13.2(j) | Spot/NA                  | 0.85/<br>NA          | None                      | NA               |
| 2      | O.D.922mm/<br>O.D.692mm | 216mm                           | SA-240 304                       | 6mm                     | 0mm                    | 1           | Full                                  | 1          | 1/ 1                     | Spot/<br>Spot            | 0.85/<br>0.85        | None                      | NA               |
| 3      | I.D.680mm               | 1198mm                          | SA-240 304                       | 6mm                     | 0mm                    | 1           | Spot                                  | 0.85       | 1/<br>Fig.UW-<br>13.2(j) | Spot/NA                  | 0.85/<br>NA          | None                      | NA               |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           |                  |
| Certi  | ficate of Authoriz      | ation: Type                     | U                                | No                      |                        | 36,9        | 922                                   | Expir      | es                       | S                        | ept. 21,             | 2022                      |                  |
| Date   | 2021. 12                | . 22                            | Name                             |                         |                        |             | chemical<br>nt Co., Ltd.              |            | Signe                    | ed Cher                  | 6                    | primit presentative)      |                  |
| Date   | December                | 22, 22                          | Signed                           | Jiangang                | Wang                   | Way         | Commissions                           |            |                          | Al Commiss               | sion No.:            | 14743                     | umber)           |
|        |                         |                                 |                                  |                         |                        |             |                                       |            |                          |                          |                      |                           | ,                |

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## FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

| 1. Manufactured                | d and cer  | tified by         | Wuxi Zhicheng<br>Park,B Zone                | Biochemical E<br>YangjianTown      | Xishan Dist        | rict, Wuxi Cit                               | v, Jiangsi | Province 2         | Road Machir<br>14108 Peop | nery Equipme<br>le's Republic                      | nt Industrial of China. |
|--------------------------------|------------|-------------------|---|------------------------------------|--------------------|--|------------|--------------------|---------------------------|--|-------------------------|
| 2. Manufactured                | d for      |                   |   |                                    |                    | (Name and addi<br>Not know<br>and address of | own        | facturer)          |                           |  |                         |
| 3. Location of in              | stallation | 1                 |   |                                    | (Name              | and address of<br>Not kn                     |            |                    |                           |  |                         |
|                                |            |                   |   |                                    |                    | Name and addre                               | ,          |                    |                           |  |                         |
| 4. Type                        |            | Verti             |   | (Oil/st                            | He:<br>eam heat ex | at exchange<br>changer 621                   |            | (-852)             |                           | WZA21-26   |                         |
|                                | (1         | Horizontal, verti |   |                                    | (Tank, sep         | arator, heat excl                            | n., etc.)  |                    | (Man                      | ufacturer's serial r                               | number)                 |
| <u> </u>                       |            | (CRN)             | W   | (Drawing numb                      |                    |  |            | 57<br>pard number) |                           | 2021<br>(Year buil                                 | t)                      |
| Data Report                    |            |                   |   |                                    |                    |  |            |                    |                           |  |                         |
| Item                           |            |                   |   |                                    |                    |  |            |                    |                           |  |                         |
| Number                         |            |                   |   |                                    |                    | Remarks                                      |            |                    |                           |  |                         |
| Item 19                        | Nozzl      | es, inspecti      | on, and safety valve                        | e openings:                        |                    |  |            |                    |                           |  |                         |
| Purpose                        |            | Diameter          |   | Mate                               | erial              | Nozzle Tr                                    | nickness   | Reinforce          | Attachm                   | ent Details  | Location                |
| (Inlet, Outlet,<br>Drain, etc) | No.        | or Size<br>(mm)   | Туре  | Nozzle                             | Flange             | Nom.   | Corr.      | ment<br>Material   | Nozzle                    | Flange   | (Insp.<br>Open.)        |
| S1<br>Steam inlet              | 1          | O.D.<br>114.3mm   | ASME B16.5-<br>2013<br>CI.150 flg.          | SA-312<br>TP304                    | SA-182<br>F304     | 6.02mm                                       | 0mm        | SA-240<br>304      | Fig.UW-<br>16.1(e)        | Fig. UW-<br>21(1)                                  | NA                      |
| S2<br>Condensate<br>outlet     | 1          | O.D.<br>114.3mm   | SO RF  ASME B16.5- 2013  CI.150 flg.  SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 6.02mm                                       | 0mm        | SA-240<br>304      | Fig.UW-<br>16.1(e)        | Fig. UW-<br>21(1)                                  | NA                      |
| S3<br>Shell side vent          | 1          | O.D.<br>21.3mm    | ASME B16.5-<br>2013<br>CI.150 flg.<br>SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 2.77mm                                       | 0mm        | Integral           | Fig.UW-<br>16.1(c)        | Fig. UW-<br>21(1)                                  | NA                      |
| T1<br>Product 1+BE<br>inlet    | 1          | O.D.<br>168.3mm   | ASME B16.5-<br>2013<br>CI.150 flg.<br>SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 7.11mm                                       | 0mm        | SA-240<br>304      | Fig.UW-<br>16.1(e)        | Fig. UW-<br>21(1)                                  | NA                      |
| T2<br>Product 1+BE<br>outlet   | 1          | O.D.<br>168.3mm   | ASME B16.5-<br>2013<br>CI.150 flg.<br>SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 7.11mm                                       | 0mm        | SA-240<br>304      | Fig.UW-<br>16.1(e)        | Fig. UW-<br>21(1)                                  | NA                      |
| V1/V2/V3<br>Tube side vent     | 3          | O.D.<br>21.3mm    | ASME B16.5-<br>2013<br>CI.150 flg.<br>SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 2.77mm                                       | 0mm        | Integral           | Fig.UW-<br>16.1(c)        | Fig. UW-<br>21(1)                                  | NA                      |
| D1/D2/D3<br>Tube side drain    | 3          | O.D.<br>33.4mm    | ASME B16.5-<br>2013<br>Cl.150 flg.<br>SO RF | SA-312<br>TP304                    | SA-182<br>F304     | 3.38mm                                       | 0mm        | Integral           | Fig.UW-<br>16.1(c)        | Fig. UW-<br>21(1)                                  | NA                      |
| Certificate of Au              | thorizatio | n: Type           | U   | No.                                | 36                 | ,922   | Expi       | res                | Se                        | pt. 21, 2022                                       |                         |
| Date 2021                      | . 12.      | 22                | Name  | Wuxi Zhichen<br>Engineering Ed     |                    | ., Ltd.                                      |            | Signe              | ed <u>Chemi</u>           | hengmin<br>(Representati                           | <u>J</u>                |
| Date Date                      | her 22     | , wil             | Signed                                      | Jiangang War<br>Authorized Inspect | J Way              | Commiss                                      | sions      | AI                 | Commission                | (Representati<br>n No.: 14743<br>pector Commission |                         |

### FORM U-5 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET SHELL-AND-TUBE HEAT EXCHANGERS

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

|                    |                              |                  |       |                | (1                               | Name and addres               | s of Manufacturer) | ince 214108 P | 0001001100                               |         |
|--------------------|------------------------------|------------------|-------|----------------|----------------------------------|-------------------------------|--------------------|---------------|--|---------|
| . Manufactured     | for                          |                  |       |                | (Name                            | Not know<br>and address of Pu | vn<br>ırchaser)    |               |  |         |
| . Location of in   | stallation                   |                  |       |                | (Hamo)                           | Not know                      |                    |               |  |         |
| .Туре              | Vertic                       | al               |       |                |                                  | \21 <b>-</b> 26               |                    |               | NA                                       |         |
|                    | (Horizontal, vertical        |                  |       |                |                                  | 's serial number)             |                    |               | (CRN                                     |         |
| WXZ                | C21A19-00 F<br>(Drawing numb |                  |       |                |                                  | 157<br>Board number)          |                    | _             | 202<br>(Year b                           |         |
|                    | (=======                     |                  | F     | IXED TURES     | SHEET HEAT EX                    |                               |                    |               | (Todi b                                  |         |
|                    | Des                          | sign/Operating F |       |                |                                  |                               | Metal Temperat     | uros          |  |         |
| Name of            |                              | Side             |       | Side           | Des                              | sign/Operating                | Temperat           | luies         | Allowable A<br>Differential<br>Expansion | Thermal |
| Condition          |                              |                  |       | Т              | Shell                            | Channel                       | Tubes              | Tubesheet     |  |         |
|                    | Min.                         | Max.             | Min.  | Max.           | (0.0)                            | (0.01)                        | (0.0)              | (0.0)         | Min.                                     | Max.    |
| D                  | (MPa)                        | (MPa)            | (MPa) | (MPa)          | (°C)                             | (°C)                          | (°C)               | (°C)          | (mm)                                     | (mm)    |
| Design             | -0.1                         | 1.2              | -0.1  | 0.6            | -10/220                          | -10/220                       | -10/220            | -10/220       | 0  | 0       |
| Operating          | /                            | 0.8              | /     | 0.28           | 175.5/175.4                      | 84.2/105                      | 84.2/105           | 175.5/175.4   | 0  | 0       |
|                    |                              |                  |       |                |                                  |                               |                    |               |  |         |
| -                  |                              |                  |       |                |                                  |                               |                    |               |  |         |
|                    |                              |                  |       |                |                                  |                               |                    |               |  |         |
|                    |                              |                  |       |                |                                  |                               |                    |               |  |         |
|                    |                              |                  |       |                |                                  |                               |                    |               |  |         |
|                    |                              |                  |       |                |                                  |                               |                    |               |  |         |
|                    |                              |                  |       |                |                                  | Remarks                       |                    |               |  |         |
| 22                 |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
| 22                 |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
| 22                 |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
| 22                 |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
|                    |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
|                    |                              |                  |       |                |                                  | Remarks                       | 4                  |               |  |         |
| 22                 | orization: T                 | ype              | U     | No.            | 36                               | Remarks                       | 4 Expires          |               | Sept. 21,                                | 2022    |
| ertificate of Auth | orization: T                 | ypeName          |       | —<br>Wuxi Zhic | 36 heng Biochemic g Equipment Co | ,922<br>cal<br>o., Ltd.       |                    | Signed        | Sept. 21,                                |         |