Form 5500

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Annual Return/Report of Employee Benefit Plan

This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code).

▶ **Complete all entries in accordance with the instructions to the Form 5500.**

OMB Nos. 1210-0110
1210-0089

2017

This Form is Open to Public Inspection

Part I Annual Report Identification Information

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

A This return/report is for:
- [ ] a multiemployer plan
- [ ] a multiple-employer plan (Filers checking this box must attach a list of participating employer information in accordance with the form instructions.)
- [X] a single-employer plan
- [ ] a DFE (specify) ____

B This return/report is:
- [ ] the first return/report
- [ ] the final return/report
- [ ] an amended return/report
- [ ] a short plan year return/report (less than 12 months)

C If the plan is a collectively-bargained plan, check here. . . . . ▶ [X]

D Check box if filing under:
- [X] Form 5558
- [ ] automatic extension
- [ ] the DFVC program
- [ ] special extension (enter description)

Part II Basic Plan Information—enter all requested information

1a Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

1b Three-digit plan number (PN) ▶ 002

1c Effective date of plan 12/31/1958

2a Plan sponsor's name (employer, if for a single-employer plan)
Mailing address (include room, apt., suite no. and street, or P.O. Box)
City or town, state or province, country, and ZIP or foreign postal code (if foreign, see instructions)
THYSSENKRUPP MATERIALS NA, INC.

22355 WEST ELEVEN MILE ROAD
SOUTHFIELD, MI 48033

2b Employer Identification Number (EIN)
38-0445860

2c Plan Sponsor's telephone number
248-233-5676

2d Business code (see instructions)
423990

Caution: A penalty for the late or incomplete filing of this return/report will be assessed unless reasonable cause is established.

Under penalties of perjury and other penalties set forth in the instructions, I declare that I have examined this return/report, including accompanying schedules, statements and attachments, as well as the electronic version of this return/report, and to the best of my knowledge and belief, it is true, correct, and complete.

SIGN HERE	Filed with authorized/valid electronic signature.	07/31/2018	KATHRYN LITTLETON
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE			
	Signature of employer/plan sponsor	Date	Enter name of individual signing as employer or plan sponsor
SIGN HERE			
	Signature of DFE	Date	Enter name of individual signing as DFE

3a Plan administrator's name and address [X] Same as Plan Sponsor

3b Administrator's EIN

3c Administrator's telephone number

4 If the name and/or EIN of the plan sponsor or the plan name has changed since the last return/report filed for this plan, enter the plan sponsor's name, EIN, the plan name and the plan number from the last return/report:
a Sponsor's name
c Plan Name

4b EIN

4d PN

5 Total number of participants at the beginning of the plan year	**5**	89
6 Number of participants as of the end of the plan year unless otherwise stated (welfare plans complete only lines **6a(1), 6a(2), 6b, 6c,** and **6d**).		
a(1) Total number of active participants at the beginning of the plan year	**6a(1)**	5
a(2) Total number of active participants at the end of the plan year	**6a(2)**	0
b Retired or separated participants receiving benefits	**6b**	17
c Other retired or separated participants entitled to future benefits	**6c**	52
d Subtotal. Add lines **6a(2)**, **6b**, and **6c**	**6d**	69
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.	**6e**	15
f Total. Add lines **6d** and **6e**.	**6f**	84
g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item)	**6g**	
h Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested	**6h**	0
7 Enter the total number of employers obligated to contribute to the plan (only multiemployer plans complete this item)	**7**	

8a If the plan provides pension benefits, enter the applicable pension feature codes from the List of Plan Characteristics Codes in the instructions:

1B 3H

b If the plan provides welfare benefits, enter the applicable welfare feature codes from the List of Plan Characteristics Codes in the instructions:

9a Plan funding arrangement (check all that apply)

(1)	[ ]	Insurance
(2)	[ ]	Code section 412(e)(3) insurance contracts
(3)	[X]	Trust
(4)	[ ]	General assets of the sponsor

9b Plan benefit arrangement (check all that apply)

(1)	[ ]	Insurance
(2)	[ ]	Code section 412(e)(3) insurance contracts
(3)	[X]	Trust
(4)	[ ]	General assets of the sponsor

10 Check all applicable boxes in 10a and 10b to indicate which schedules are attached, and, where indicated, enter the number attached. (See instructions)

a Pension Schedules

(1)	[X]	**R** (Retirement Plan Information)
(2)	[ ]	**MB** (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary
(3)	[X]	**SB** (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary

b General Schedules

(1)	[ ]		**H** (Financial Information)
(2)	[X]		**I** (Financial Information – Small Plan)
(3)	[ ]	0	**A** (Insurance Information)
(4)	[ ]		**C** (Service Provider Information)
(5)	[X]		**D** (DFE/Participating Plan Information)
(6)	[ ]		**G** (Financial Transaction Schedules)

Part III Form M-1 Compliance Information (to be completed by welfare benefit plans)

11a If the plan provides welfare benefits, was the plan subject to the Form M-1 filing requirements during the plan year? (See instructions and 29 CFR 2520.101-2.) ..... ☐ Yes ☐ No

If "Yes" is checked, complete lines 11b and 11c.

11b Is the plan currently in compliance with the Form M-1 filing requirements? (See instructions and 29 CFR 2520.101-2.) ..... ☐ Yes ☐ No

11c Enter the Receipt Confirmation Code for the 2017 Form M-1 annual report. If the plan was not required to file the 2017 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code_____

SCHEDULE SB (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Single-Employer Defined Benefit Plan Actuarial Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6059 of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500 or 5500-SF.**

OMB No. 1210-0110

2017

This Form is Open to Public Inspection

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

▶ **Round off amounts to nearest dollar.**

▶ **Caution:** A penalty of $1,000 will be assessed for late filing of this report unless reasonable cause is established.

A Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF
THYSSENKRUPP MATERIALS NA, INC.

D Employer Identification Number (EIN)
38-0445860

E Type of plan: [X] Single [ ] Multiple-A [ ] Multiple-B

F Prior year plan size: [ ] 100 or fewer [ ] 101-500 [X] More than 500

Part I Basic Information

1 Enter the valuation date: Month 01 Day 01 Year 2017

2 Assets:

a Market value	**2a**	2760387
b Actuarial value	**2b**	2789835

3 Funding target/participant count breakdown

	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	34	1784234	1784234
b For terminated vested participants	50	1115987	1115987
c For active participants	5	276578	276578
d Total	89	3176799	3176799

4 If the plan is in at-risk status, check the box and complete lines (a) and (b) [ ]

a Funding target disregarding prescribed at-risk assumptions	**4a**	
b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	**4b**	
5 Effective interest rate	**5**	5.77 %
6 Target normal cost	**6**	113271

Statement by Enrolled Actuary

To the best of my knowledge, the information supplied in this schedule and accompanying schedules, statements and attachments, if any, is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.

SIGN HERE

Signature of actuary

07/30/2018
Date

LAUREN D PELLERITO
Type or print name of actuary

17-06364
Most recent enrollment number

TOWERS WATSON DELAWARE INC.
Firm name

248-936-7700
Telephone number (including area code)

26555 EVERGREEN
SUITE 1600
SOUTHFIELD, MI 48076
Address of the firm

If the actuary has not fully reflected any regulation or ruling promulgated under the statute in completing this schedule, check the box and see instructions [ ]

Part II Beginning of Year Carryover and Prefunding Balances

		(a) Carryover balance	(b) Prefunding balance
7	Balance at beginning of prior year after applicable adjustments (line 13 from prior year)	0	0
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	0
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 11.00 %	0	0
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year)		51
	b(1) Interest on the excess, if any, of line 38a over line 38b from prior year Schedule SB, using prior year's effective interest rate of 5.86%		3
	b(2) Interest on line 38b from prior year Schedule SB, using prior year's actual return		0
	c Total available at beginning of current plan year to add to prefunding balance		54
	d Portion of (c) to be added to prefunding balance		0
12	Other reductions in balances due to elections or deemed elections	0	0
13	Balance at beginning of current year (line 9 + line 10 + line 11d – line 12)	0	0

Part III Funding Percentages

14	Funding target attainment percentage	14	87.81%
15	Adjusted funding target attainment percentage	15	87.81%
16	Prior year's funding percentage for purposes of determining whether carryover/prefunding balances may be used to reduce current year's funding requirement	16	88.09%
17	If the current value of the assets of the plan is less than 70 percent of the funding target, enter such percentage.	17	%

Part IV Contributions and Liquidity Shortfalls

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
01/12/2017	91516	0			
03/24/2017	58111	0			
04/13/2017	51224	0			
07/13/2017	51222	0			
10/12/2017	51222	0			
			Totals ► 18(b)	303295	18(c) 0

19	Discounted employer contributions – see instructions for small plan with a valuation date after the beginning of the year:		
	a Contributions allocated toward unpaid minimum required contributions from prior years.	19a	0
	b Contributions made to avoid restrictions adjusted to valuation date	19b	0
	c Contributions allocated toward minimum required contribution for current year adjusted to valuation date	19c	227668

20 Quarterly contributions and liquidity shortfalls:

a Did the plan have a "funding shortfall" for the prior year? [X] Yes [ ] No

b If line 20a is "Yes," were required quarterly installments for the current year made in a timely manner? [X] Yes [ ] No

c If line 20a is "Yes," see instructions and complete the following table as applicable:

Liquidity shortfall as of end of quarter of this plan year

(1) 1st	(2) 2nd	(3) 3rd	(4) 4th
0	0	0	0

Part V Assumptions Used to Determine Funding Target and Target Normal Cost

21 Discount rate:

a Segment rates:

1st segment:	2nd segment:	3rd segment:	
4.16%	5.72%	6.48%	☐ N/A, full yield curve used

b Applicable month (enter code)	**21b**	4
22 Weighted average retirement age	**22**	62

23 Mortality table(s) (see instructions) ☐ Prescribed - combined ☒ Prescribed - separate ☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment.	☐ Yes	☒ No
25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment.	☐ Yes	☒ No
26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment.	☒ Yes	☐ No

27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	**27**	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

28 Unpaid minimum required contributions for all prior years	**28**	0
29 Discounted employer contributions allocated toward unpaid minimum required contributions from prior years (line 19a)	**29**	0
30 Remaining amount of unpaid minimum required contributions (line 28 minus line 29)	**30**	0

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):

a Target normal cost (line 6)	**31a**	113271
b Excess assets, if applicable, but not greater than line 31a	**31b**	0

32 Amortization installments:	Outstanding Balance	Installment
a Net shortfall amortization installment	386964	114383
b Waiver amortization installment	0	0

33 If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month _____ Day _____ Year _____) and the waived amount	**33**	
34 Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)	**34**	227654

	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	0	0

36 Additional cash requirement (line 34 minus line 35)	**36**	227654
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	**37**	227668

38 Present value of excess contributions for current year (see instructions)

a Total (excess, if any, of line 37 over line 36)	**38a**	14
b Portion included in line 38a attributable to use of prefunding and funding standard carryover balances	**38b**	0
39 Unpaid minimum required contribution for current year (excess, if any, of line 36 over line 37)	**39**	0
40 Unpaid minimum required contributions for all years	**40**	0

Part IX Pension Funding Relief Under Pension Relief Act of 2010 (See Instructions)

41 If an election was made to use PRA 2010 funding relief for this plan:

a Schedule elected ☐ 2 plus 7 years ☐ 15 years

b Eligible plan year(s) for which the election in line 41a was made ☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011

42 Amount of acceleration adjustment	**42**	
43 Excess installment acceleration amount to be carried over to future plan years	**43**	

SCHEDULE D (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

DFE/Participating Plan Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA).

▶ **File as an attachment to Form 5500.**

OMB No. 1210-0110

2017

This Form is Open to Public Inspection.

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

A Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

C Plan or DFE sponsor's name as shown on line 2a of Form 5500
THYSSENKRUPP MATERIALS NA, INC.

D Employer Identification Number (EIN)
38-0445860

Part I Information on interests in MTIAs, CCTs, PSAs, and 103-12 IEs (to be completed by plans and DFEs)

(Complete as many entries as needed to report all interests in DFEs)

a Name of MTIA, CCT, PSA, or 103-12 IE: EQUITY MASTER TRUST UNIT

b Name of sponsor of entity listed in (a): THYSSENKRUPP NORTH AMERICA, INC.

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
38-2535907-001	M	1276281

a Name of MTIA, CCT, PSA, or 103-12 IE: EXTENDED DURATION MASTER TRUST UNIT

b Name of sponsor of entity listed in (a): THYSSENKRUPP NORTH AMERICA, INC.

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
38-2535907-003	M	539012

a Name of MTIA, CCT, PSA, or 103-12 IE: OPPORTUNISTIC MASTER TRUST UNIT

b Name of sponsor of entity listed in (a): THYSSENKRUPP NORTH AMERICA, INC.

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
38-2535907-004	M	947701

a Name of MTIA, CCT, PSA, or 103-12 IE: CASH/S.T. BOND MASTER TRUST UNIT

b Name of sponsor of entity listed in (a): THYSSENKRUPP NORTH AMERICA, INC.

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
38-2535907-005	M	107593

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:

b Name of sponsor of entity listed in (a):

c EIN-PN	**d** Entity code	**e** Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

Part II Information on Participating Plans (to be completed by DFEs)

(Complete as many entries as needed to report all participating plans)

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

a Plan name	
b Name of plan sponsor	**c** EIN-PN

SCHEDULE I (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Financial Information—Small Plan

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA), and section 6058(a) of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500.**

OMB No. 1210-0110

2017

This Form is Open to Public Inspection

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

A Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

C Plan sponsor's name as shown on line 2a of Form 5500
THYSSENKRUPP MATERIALS NA, INC.

D Employer Identification Number (EIN)
38-0445860

Complete Schedule I if the plan covered fewer than 100 participants as of the beginning of the plan year. You may also complete Schedule I if you are filing as a small plan under the 80-120 participant rule (see instructions). Complete Schedule H if reporting as a large plan or DFE.

Part I Small Plan Financial Information

Report below the current value of assets and liabilities, income, expenses, transfers and changes in net assets during the plan year. Combine the value of plan assets held in more than one trust. Do not enter the value of the portion of an insurance contract that guarantees during this plan year to pay a specific dollar benefit at a future date. Include all income and expenses of the plan including any trust(s) or separately maintained fund(s) and any payments/receipts to/from insurance carriers. **Round off amounts to the nearest dollar.**

			(a) Beginning of Year	**(b)** End of Year
1	**Plan Assets and Liabilities:**			
a	Total plan assets	**1a**	2611677	2870587
b	Total plan liabilities	**1b**	0	0
c	Net plan assets (subtract line 1b from line 1a)	**1c**	2611677	2870587
2	**Income, Expenses, and Transfers for this Plan Year:**		**(a)** Amount	**(b)** Total
a	Contributions received or receivable:			
	(1) Employers	**2a(1)**	303295	
	(2) Participants	**2a(2)**		
	(3) Others (including rollovers)	**2a(3)**		
b	Noncash contributions	**2b**		
c	Other income	**2c**	457971	
d	Total income (add lines 2a(1), 2a(2), 2a(3), 2b, and 2c)	**2d**		761266
e	Benefits paid (including direct rollovers)	**2e**	430389	
f	Corrective distributions (see instructions)	**2f**		
g	Certain deemed distributions of participant loans (see instructions)	**2g**		
h	Administrative service providers (salaries, fees, and commissions)	**2h**	33934	
i	Other expenses	**2i**	38033	
j	Total expenses (add lines 2e, 2f, 2g, 2h, and 2i)	**2j**		502356
k	Net income (loss) (subtract line 2j from line 2d)	**2k**		258910
l	Transfers to (from) the plan (see instructions)	**2l**		

3 **Specific Assets:** If the plan held assets at any time during the plan year in any of the following categories, check "Yes" and enter the current value of any assets remaining in the plan as of the end of the plan year. Allocate the value of the plan's interest in a commingled trust containing the assets of more than one plan on a line-by-line basis unless the trust meets one of the specific exceptions described in the instructions.

			Yes	No	Amount
a	Partnership/joint venture interests	**3a**		X	
b	Employer real property	**3b**		X	
c	Real estate (other than employer real property)	**3c**		X	
d	Employer securities	**3d**		X	
e	Participant loans	**3e**		X	
f	Loans (other than to participants)	**3f**		X	
g	Tangible personal property	**3g**		X	

Part II Compliance Questions

4 During the plan year:		Yes	No	Amount
a Was there a failure to transmit to the plan any participant contributions within the time period described in 29 CFR 2510.3-102? Continue to answer "Yes" for any prior year failures until fully corrected. (See instructions and DOL's Voluntary Fiduciary Correction Program.)	4a		X	
b Were any loans by the plan or fixed income obligations due the plan in default as of the close of plan year or classified during the year as uncollectible? Disregard participant loans secured by the participant's account balance.	4b		X	
c Were any leases to which the plan was a party in default or classified during the year as uncollectible?	4c		X	
d Were there any nonexempt transactions with any party-in-interest? (Do not include transactions reported on line 4a.)	4d		X	
e Was the plan covered by a fidelity bond?	4e	X		500000
f Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?	4f		X	
g Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?	4g		X	
h Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?	4h		X	
i Did the plan at any time hold 20% or more of its assets in any single security, debt, mortgage, parcel of real estate, or partnership/joint venture interest?	4i		X	
j Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?	4j		X	
k Are you claiming a waiver of the annual examination and report of an independent qualified public accountant (IQPA) under 29 CFR 2520.104-46? If "No," attach an IQPA's report or 2520.104-50 statement. (See instructions on waiver eligibility and conditions.)	4k	X		
l Has the plan failed to provide any benefit when due under the plan?	4l		X	
m If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)	4m		X	
n If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3	4n			

5a Has a resolution to terminate the plan been adopted during the plan year or any prior plan year? ..... ☐ Yes ☒ No

If "Yes," enter the amount of any plan assets that reverted to the employer this year _____.

5b If, during this plan year, any assets or liabilities were transferred from this plan to another plan(s), identify the plan(s) to which assets or liabilities were transferred. (See instructions.)

5b(1) Name of plan(s)	5b(2) EIN(s)	5b(3) PN(s)

5c If the plan is a defined benefit plan, is it covered under the PBGC insurance program (See ERISA section 4021.)? ..... ☒ Yes ☐ No ☐ Not determined.

If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year 4054141. (See instructions.)

SCHEDULE R (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Retirement Plan Information

This schedule is required to be filed under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6058(a) of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500.**

OMB No. 1210-0110

2017

This Form is Open to Public Inspection.

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

A Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

C Plan sponsor's name as shown on line 2a of Form 5500
THYSSENKRUPP MATERIALS NA, INC.

D Employer Identification Number (EIN)
38-0445860

Part I Distributions

All references to distributions relate only to payments of benefits during the plan year.

1 Total value of distributions paid in property other than in cash or the forms of property specified in the instructions **1** 0

2 Enter the EIN(s) of payor(s) who paid benefits on behalf of the plan to participants or beneficiaries during the year (if more than two, enter EINs of the two payors who paid the greatest dollar amounts of benefits):

EIN(s): 38-2535907

Profit-sharing plans, ESOPs, and stock bonus plans, skip line 3.

3 Number of participants (living or deceased) whose benefits were distributed in a single sum, during the plan year **3** 5

Part II Funding Information (If the plan is not subject to the minimum funding requirements of section 412 of the Internal Revenue Code or ERISA section 302, skip this Part.)

4 Is the plan administrator making an election under Code section 412(d)(2) or ERISA section 302(d)(2)? ..... ☐ **Yes** ☒ **No** ☐ **N/A**

If the plan is a defined benefit plan, go to line 8.

5 If a waiver of the minimum funding standard for a prior year is being amortized in this plan year, see instructions and enter the date of the ruling letter granting the waiver. **Date:** Month _____ Day _____ Year _____

If you completed line 5, complete lines 3, 9, and 10 of Schedule MB and do not complete the remainder of this schedule.

6 **a** Enter the minimum required contribution for this plan year (include any prior year accumulated funding deficiency not waived) **6a**

b Enter the amount contributed by the employer to the plan for this plan year **6b**

c Subtract the amount in line 6b from the amount in line 6a. Enter the result (enter a minus sign to the left of a negative amount) **6c**

If you completed line 6c, skip lines 8 and 9.

7 Will the minimum funding amount reported on line 6c be met by the funding deadline? ..... ☐ **Yes** ☐ **No** ☐ **N/A**

8 If a change in actuarial cost method was made for this plan year pursuant to a revenue procedure or other authority providing automatic approval for the change or a class ruling letter, does the plan sponsor or plan administrator agree with the change? ..... ☐ **Yes** ☐ **No** ☒ **N/A**

Part III Amendments

9 If this is a defined benefit pension plan, were any amendments adopted during this plan year that increased or decreased the value of benefits? If yes, check the appropriate box. If no, check the "No" box. ..... ☐ **Increase** ☐ **Decrease** ☐ **Both** ☒ **No**

Part IV ESOPs (see instructions). If this is not a plan described under section 409(a) or 4975(e)(7) of the Internal Revenue Code, skip this Part.

10 Were unallocated employer securities or proceeds from the sale of unallocated securities used to repay any exempt loan? ..... ☐ **Yes** ☐ **No**

11 **a** Does the ESOP hold any preferred stock? ..... ☐ **Yes** ☐ **No**

b If the ESOP has an outstanding exempt loan with the employer as lender, is such loan part of a "back-to-back" loan? (See instructions for definition of "back-to-back" loan.) ..... ☐ **Yes** ☐ **No**

12 Does the ESOP hold any stock that is not readily tradable on an established securities market? ..... ☐ **Yes** ☐ **No**

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

13 Enter the following information for each employer that contributed more than 5% of total contributions to the plan during the plan year (measured in dollars). See instructions. *Complete as many entries as needed to report all applicable employers.*

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify):

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

---

a Name of contributing employer

b EIN **c** Dollar amount contributed by employer

d Date collective bargaining agreement expires *(If employer contributes under more than one collective bargaining agreement, check box* ☐ *and see instructions regarding required attachment. Otherwise, enter the applicable date.)* Month _____ Day _____ Year _____

e Contribution rate information *(If more than one rate applies, check this box* ☐ *and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)*
(1) Contribution rate (in dollars and cents) _____
(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

14 Enter the number of participants on whose behalf no contributions were made by an employer as an employer of the participant for:

a The current year	**14a**	
b The plan year immediately preceding the current plan year	**14b**	
c The second preceding plan year	**14c**	

15 Enter the ratio of the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during the current plan year to:

a The corresponding number for the plan year immediately preceding the current plan year	**15a**	
b The corresponding number for the second preceding plan year	**15b**	

16 Information with respect to any employers who withdrew from the plan during the preceding plan year:

a Enter the number of employers who withdrew during the preceding plan year	**16a**	
b If line 16a is greater than 0, enter the aggregate amount of withdrawal liability assessed or estimated to be assessed against such withdrawn employers	**16b**	

17 If assets and liabilities from another plan have been transferred to or merged with this plan during the plan year, check box and see instructions regarding supplemental information to be included as an attachment. ☐

Part VI Additional Information for Single-Employer and Multiemployer Defined Benefit Pension Plans

18 If any liabilities to participants or their beneficiaries under the plan as of the end of the plan year consist (in whole or in part) of liabilities to such participants and beneficiaries under two or more pension plans as of immediately before such plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐

19 If the total number of participants is 1,000 or more, complete lines (a) through (c)

a Enter the percentage of plan assets held as:
Stock: _____% Investment-Grade Debt: _____% High-Yield Debt: _____% Real Estate: _____% Other: _____%

b Provide the average duration of the combined investment-grade and high-yield debt:
☐ 0-3 years ☐ 3-6 years ☐ 6-9 years ☐ 9-12 years ☐ 12-15 years ☐ 15-18 years ☐ 18-21 years ☐ 21 years or more

c What duration measure was used to calculate line 19(b)?
☐ Effective duration ☐ Macaulay duration ☐ Modified duration ☐ Other (specify):

SCHEDULE SB ATTACHMENTS

Schedule SB, Line 26
Schedule of Active Participant Data as of January 1, 2017

Attained Age	Years of Credited Service																			
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 & Over	
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
Under 25	0		0		0		0		0		0		0		0		0		0	
25 - 29	0		0		0		0		0		0		0		0		0		0	
30 - 34	0		0		0		0		0		0		0		0		0		0	
35 - 39	0		0		0		0		0		0		0		0		0		0	
40 - 44	0		0		0		0		0		0		0		0		0		0	
45 - 49	0		0		0		0		1		1		0		0		0		0	
50 - 54	0		0		0		0		0		2		0		0		0		0	
55 - 59	0		0		0		0		0		0		0		0		0		0	
60 - 64	0		0		0		0		0		0		0		1		0		0	
65 - 69	0		0		0		0		0		0		0		0		0		0	
70 & Over	0		0		0		0		0		0		0		0		0		0	

Plan Name: Copper and Brass Sales Hourly-Rated Employees Retirement Plan
EIN / PN: 38-0445860/002
Plan Sponsor: ThyssenKrupp Materials NA, Inc.
Valuation Date January 1, 2017

SCHEDULE SB ATTACHMENTS

Schedule SB, Part V
Statement of Actuarial Assumptions/Methods

Economic Assumptions

Interest rate basis:

■ Applicable month	September
■ Interest rate basis	3-Segment Rates

Interest rates:

	Reflecting Corridors	Not Reflecting Corridors
■ First segment rate	4.16%	1.52%
■ Second segment rate	5.72%	3.80%
■ Third segment rate	6.48%	4.79%
■ Effective interest rate	5.77%	3.93%

Annual rates of increase

■ Compensation	N/A
■ Future Social Security wage bases	N/A
■ Statutory limits on compensation	Accrued benefits projected to be paid in future years are limited to the maximum presently allowed under IRC §415. Plan compensation is limited to the maximum presently allowed under IRC §401(a)(17). No provision is made for future increases in the maximum annual benefit or compensation limit.

Administrative expenses

The amount included this year for plan-related expenses is $101,843. The method for determining administrative expenses remains the three year average of non-PBGC related administrative expenses plus the current year's PBGC premium.

SCHEDULE SB ATTACHMENTS

Demographic Assumptions

Inclusion date

The valuation date coincident with or next following the date on which the employee becomes a participant.

New or rehired employees

It was assumed there will be no new or rehired employees.

Mortality

- Healthy

The prescribed mortality assumption under IRC §430(h)(3)(A) using static tables with separate mortality rates for annuitants and non-annuitants.

- Disabled

Alternative disabled life mortality tables defined under Revenue Ruling 96-7.

Termination

Rates varying by age and gender

Representative Termination Rates

	Percentage leaving during the year	
Attained Age	Males	Females
20	22.4%	37.5%
25	14.9%	22.4%
30	10.4%	14.9%
40	4.3%	7.4%
50	0.9%	2.7%
55	0.0%	0.9%

Disability

None

SCHEDULE SB ATTACHMENTS

Retirement

For purposes of determining the Funding Target and Target Normal Cost (both disregarding at-risk assumptions), the rates at which participants retire by age are shown below.

Attained Age	Rate
55	7.5%
56-59	3.5%
60	3.5%
61	3.5%
62	50.0%
63-64	10.0%
65	100.0%

The rate at age 60 is 7.5% for participants with more than 30 years of service. The weighted average retirement age is 62

Benefit commencement date:

- Preretirement death benefit — The later of the death of the active participant or the date the participant would have attained age 55
- Deferred vested benefit — Upon termination of employment
- Disability benefit — Upon disablement
- Retirement benefit — Upon termination of employment

Form of payment — Active participants are assumed to elect a lump sum. 50% of deferred participants are assumed to elect an annuity and 50% a lump sum.

Lump sum payments — Lump sums were valued using a discount rate of 3.00% (average of the index over the past 5 plan years) and Revenue Ruling 2001-62.

Percent married — For purposes of valuing the pre-retirement surviving spouse's benefit, 80% of eligible participants are assumed to be married.

Spouse age — Male spouses are assumed to be 3 years older than female spouses.

At-risk assumptions — Not applicable

SCHEDULE SB ATTACHMENTS

Timing of benefit payments	Annuity payments are payable monthly at the beginning of the month and lump sum payments are payable on date of decrement.

Methods

Valuation date	First day of plan year
Funding target	Present value of accrued benefits as required by regulations under IRC §430.
Target normal cost	Present value of benefits expected to accrue during the plan year plus plan-related expenses expected to be paid from plan assets during the plan year as required by regulations under IRC §430.
Actuarial value of assets for determining minimum required contributions	Average of the fair market value of assets on the valuation date and the two immediately preceding valuation dates, adjusted for contributions, benefits, administrative expenses and expected earnings (with such expected earnings limited as described in IRS Notice 2009-22). The average asset value must be within 10% of market value, including discounted contributions receivable (discounted using the effective interest rate for the 2016 plan year.) The method of computing the actuarial value of assets complies with rules governing the calculation of such values under the Pension Protection Act of 2006 (PPA). These rules produce smoothed values that reflect the underlying market value of plan assets but fluctuate less than the market value. As a result, the actuarial value of assets will be lower than the market value in some years and greater in other years. However, over the long term under PPA's smoothing rules, the method has a significant bias to produce an actuarial value of assets that is below the market value of assets.
Benefits not valued	All benefits described in the Plan Provisions section of this report were valued based on discussions with ThyssenKrupp Materials NA, Inc. regarding the likelihood that these benefits will be paid. Willis Towers Watson has reviewed the plan provisions with ThyssenKrupp Materials

SCHEDULE SB ATTACHMENTS

NA, Inc. and, based on that review, is not aware of any significant benefits required to be valued that were not.

Data Sources

Willis Towers Watson used asset data supplied by the trustee. ThyssenKrupp Materials NA, Inc. furnished participant data as of the valuation date. Data were reviewed for reasonableness and consistency, but no audit was performed. Based on discussions with the company, assumptions or estimates were made when data were not available, and the data was adjusted to reflect any significant events that occurred between the date the data was collected and the measurement date. We are not aware of any errors or omissions in the data that would have a significant effect on the results of our calculations.

Assumptions Rationale - Significant Economic Assumptions

Discount rate	The basis chosen was selected by the plan sponsor from among choices prescribed by law, all of which are based on observed market data over certain periods of time.
Lump sum conversion rate	As required by IRC 430, lump sum benefits are valued using "annuity substitution", adjusted as required to account for the fact that the plan's lump sum conversion rate is based on the 30-year Treasury rate. This adjustment results in an expected lump sum conversion rate of 3.00% based on historical Treasury rates.

Assumptions Rationale – Significant Demographic Assumptions

Healthy Mortality	Assumptions used for funding purposes are as prescribed by IRC §430(h).
Disabled Mortality	Assumptions used for funding purposes are as prescribed by IRC §430(h).
Termination	Termination rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by termination patterns different than assumed. Assumed termination rates differ by age gender because of expected differences in termination rates by age and gender.
Retirement	Retirement rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed.
Form of payment	The percentage of retiring participants assumed to take lump sums is based on observed experience over recent periods with annual review.

SCHEDULE SB ATTACHMENTS

	The percentage of retiring participants assumed to take joint and survivor annuities is based on observed experience over recent periods with annual review.
Percent married	The assumed percentage married is based on a blending of marital statuses of recent retirees and changes expected to occur in marriage patterns of retirement age individuals in the future.
Spouse age	The assumed age difference for spouses is based on general population statistics of the age difference for married individuals of retirement age.

Source of Prescribed Methods

Funding methods	The methods used for funding purposes, including the method of determining plan assets, are "prescribed methods set by law," as defined in the actuarial standards of practice (ASOPs). These methods are required by IRC §430, or were selected by the plan sponsor from a range of methods permitted by IRC §430.

Changes in Assumptions and Methods

Change in assumptions since prior valuation	The segment interest rates used to calculate the funding target and target normal cost were updated from an applicable month of September 2015 to September 2016 to determine minimum funding requirements and benefit restrictions and reflect the interest rate corridors of HATFA. The required mortality used to calculate the funding target and target normal cost was updated to include one additional year of projected mortality improvements. The assumed plan-related expenses added to the target normal cost was changed from $113,426 to $101,843.
Change in methods since prior valuation	None.

SCHEDULE SB (Form 5500)

Department of the Treasury
Internal Revenue Service

Department of Labor
Employee Benefits Security Administration

Pension Benefit Guaranty Corporation

Single-Employer Defined Benefit Plan Actuarial Information

This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6059 of the Internal Revenue Code (the Code).

▶ **File as an attachment to Form 5500 or 5500-SF.**

OMB No. 1210-0110

2017

This Form is Open to Public Inspection

For calendar plan year 2017 or fiscal plan year beginning 01/01/2017 and ending 12/31/2017

▶ **Round off amounts to nearest dollar.**

▶ **Caution:** A penalty of $1,000 will be assessed for late filing of this report unless reasonable cause is established.

A Name of plan
COPPER AND BRASS SALES HOURLY-RATED EMPLOYEES RETIREMENT PLAN

B Three-digit plan number (PN) ▶ 002

C Plan sponsor's name as shown on line 2a of Form 5500 or 5500-SF
THYSSENKRUPP MATERIALS NA, INC.

D Employer Identification Number (EIN)
38-0445860

E Type of plan: [X] Single [ ] Multiple-A [ ] Multiple-B

F Prior year plan size: [ ] 100 or fewer [ ] 101-500 [X] More than 500

Part I Basic Information

1 Enter the valuation date: Month 01 Day 01 Year 2017

2 Assets:

a Market value	**2a**	2,760,387
b Actuarial value	**2b**	2,789,835

3 Funding target/participant count breakdown

	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	34	1,784,234	1,784,234
b For terminated vested participants	50	1,115,987	1,115,987
c For active participants	5	276,578	276,578
d Total	89	3,176,799	3,176,799

4 If the plan is in at-risk status, check the box and complete lines (a) and (b) [ ]

a Funding target disregarding prescribed at-risk assumptions	**4a**	
b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	**4b**	
5 Effective interest rate	**5**	5.77%
6 Target normal cost	**6**	113,271

Statement by Enrolled Actuary

To the best of my knowledge, the information supplied in this schedule and accompanying schedules, statements and attachments, if any, is complete and accurate. Each prescribed assumption was applied in accordance with applicable law and regulations. In my opinion, each other assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, offer my best estimate of anticipated experience under the plan.

SIGN HERE

Lauren D Pellerito

Signature of actuary

7/30/2018

Date

Lauren D Pellerito

Type or print name of actuary

1706364

Most recent enrollment number

Towers Watson Delaware Inc.

Firm name

248-936-7700

Telephone number (including area code)

26555 Evergreen
Suite 1600
Southfield MI 48076

Address of the firm

If the actuary has not fully reflected any regulation or ruling promulgated under the statute in completing this schedule, check the box and see instructions [ ]

Part II Beginning of Year Carryover and Prefunding Balances

		(a) Carryover balance	(b) Prefunding balance
7	Balance at beginning of prior year after applicable adjustments (line 13 from prior year)	0	0
8	Portion elected for use to offset prior year's funding requirement (line 35 from prior year)	0	0
9	Amount remaining (line 7 minus line 8)	0	0
10	Interest on line 9 using prior year's actual return of 11.00%	0	0
11	Prior year's excess contributions to be added to prefunding balance:		
	a Present value of excess contributions (line 38a from prior year)		51
	b(1) Interest on the excess, if any, of line 38a over line 38b from prior year Schedule SB, using prior year's effective interest rate of 5.86%		3
	b(2) Interest on line 38b from prior year Schedule SB, using prior year's actual return		0
	c Total available at beginning of current plan year to add to prefunding balance		54
	d Portion of (c) to be added to prefunding balance		0
12	Other reductions in balances due to elections or deemed elections	0	0
13	Balance at beginning of current year (line 9 + line 10 + line 11d – line 12)	0	0

Part III Funding Percentages

14	Funding target attainment percentage	14	87.81%
15	Adjusted funding target attainment percentage	15	87.81%
16	Prior year's funding percentage for purposes of determining whether carryover/prefunding balances may be used to reduce current year's funding requirement	16	88.09%
17	If the current value of the assets of the plan is less than 70 percent of the funding target, enter such percentage.	17	%

Part IV Contributions and Liquidity Shortfalls

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
04/13/2017	51,224	0			
07/13/2017	51,222	0			
10/12/2017	51,222	0			
01/12/2018	51,222	0			
03/27/2018	32,338	0			
			Totals ► 18(b)	237,228	18(c) 0

19 Discounted employer contributions – see instructions for small plan with a valuation date after the beginning of the year:

a Contributions allocated toward unpaid minimum required contributions from prior years	19a	0
b Contributions made to avoid restrictions adjusted to valuation date	19b	0
c Contributions allocated toward minimum required contribution for current year adjusted to valuation date	19c	227,668

20 Quarterly contributions and liquidity shortfalls:

a Did the plan have a "funding shortfall" for the prior year? [X] Yes [ ] No

b If line 20a is "Yes," were required quarterly installments for the current year made in a timely manner? [X] Yes [ ] No

c If line 20a is "Yes," see instructions and complete the following table as applicable:

Liquidity shortfall as of end of quarter of this plan year

(1) 1st	(2) 2nd	(3) 3rd	(4) 4th
0	0	0	0

Part V Assumptions Used to Determine Funding Target and Target Normal Cost

21 Discount rate:

a Segment rates:

1st segment:	2nd segment:	3rd segment:	☐ N/A, full yield curve used
4.16 %	5.72 %	6.48%	

b Applicable month (enter code)	**21b**	4
22 Weighted average retirement age	**22**	62

23 Mortality table(s) (see instructions) ☐ Prescribed - combined ☒ Prescribed - separate ☐ Substitute

Part VI Miscellaneous Items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment.		☐ Yes ☒ No
25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment.		☐ Yes ☒ No
26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment.		☒ Yes ☐ No
27 If the plan is subject to alternative funding rules, enter applicable code and see instructions regarding attachment	**27**	

Part VII Reconciliation of Unpaid Minimum Required Contributions For Prior Years

28 Unpaid minimum required contributions for all prior years	**28**	0
29 Discounted employer contributions allocated toward unpaid minimum required contributions from prior years (line 19a)	**29**	0
30 Remaining amount of unpaid minimum required contributions (line 28 minus line 29)	**30**	0

Part VIII Minimum Required Contribution For Current Year

31 Target normal cost and excess assets (see instructions):

a Target normal cost (line 6)	**31a**	113,271
b Excess assets, if applicable, but not greater than line 31a	**31b**	0

32 Amortization installments:

	Outstanding Balance	Installment
a Net shortfall amortization installment	386,964	114,383
b Waiver amortization installment	0	0

33 If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month _____ Day _____ Year _____) and the waived amount	**33**	
34 Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)	**34**	227,654

	Carryover balance	Prefunding balance	Total balance
35 Balances elected for use to offset funding requirement	0	0	0

36 Additional cash requirement (line 34 minus line 35)	**36**	227,654
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)	**37**	227,668
38 Present value of excess contributions for current year (see instructions)		
a Total (excess, if any, of line 37 over line 36)	**38a**	14
b Portion included in line 38a attributable to use of prefunding and funding standard carryover balances	**38b**	0
39 Unpaid minimum required contribution for current year (excess, if any, of line 36 over line 37)	**39**	0
40 Unpaid minimum required contributions for all years	**40**	0

Part IX Pension Funding Relief Under Pension Relief Act of 2010 (See Instructions)

41 If an election was made to use PRA 2010 funding relief for this plan:

a Schedule elected		☐ 2 plus 7 years ☐ 15 years
b Eligible plan year(s) for which the election in line 41a was made		☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011
42 Amount of acceleration adjustment	**42**	
43 Excess installment acceleration amount to be carried over to future plan years	**43**	

SCHEDULE SB ATTACHMENTS

Schedule SB – Statement by Enrolled Actuary

Plan Sponsor	ThyssenKrupp Materials NA, Inc.
EIN/PN	38-0445860/002
Plan Name	Copper and Brass Sales Hourly-Rated Employees Retirement Plan
Valuation Date	January 1, 2017
Enrolled Actuary	Lauren D. Pellerito
Enrollment Number	17-06364

The actuarial assumptions that are not mandated by IRC § 430 and regulations, represent the enrolled actuary's best estimate of anticipated experience under the plan, subject to the following conditions:

The actuarial valuation, on which the information in this Schedule SB is based, has been prepared in reliance upon the employee and financial data furnished by the plan administrator and the trustee. The enrolled actuary has not made a rigorous check of the accuracy of this information but has accepted it after reviewing it and concluding it is reasonable in relation to similar information furnished in previous years. The amounts of contributions and dates paid shown in Item 18 of Schedule SB were listed in reliance on information provided by the plan administrator and/or trustee.

SCHEDULE SB ATTACHMENTS

Schedule SB, Line 22
Description of Weighted Average Retirement Age
as of January 1, 2017

See Schedule SB, Part V - Statement of Actuarial Assumptions/Methods for retirement rates. The average retirement age for Line 22 was calculated by determining the average age at retirement for those current active participants expected to reach retirement, based on all current decrements assumed.

Plan Name:	Copper and Brass Sales Hourly-Rated Employees Retirement Plan
EIN / PN:	38-0445860/002
Plan Sponsor:	ThyssenKrupp Materials NA, Inc.
Valuation Date	January 1, 2017

SCHEDULE SB ATTACHMENTS

Schedule SB, Part V
Summary of Plan Provisions

Plan Provisions

December 31, 1958, as amended effective October 31, 2011

Covered employees

All union hourly employees covered by collective bargaining agreement with one of the following:

a. **Detroit**

International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America, Local No. 337 - (not eligible if hired after June 19, 1998)

b. **Cleveland**

International Association of Machinists, Aero Space Workers, AFL-CIO District No. 54 – (not eligible if hired after November 1, 1999)

c. **Grand Rapids**

General Teamsters Union, Local No. 406 – (not eligible if hired after September 1, 1998)

d. **Chicago**

Machinery, Scrap Iron, Metal & Steel Chauffeurs, Warehousemen, Handlers, Helpers, Alloy Fabricators, Theatrical, Exposition, Convention and Trade Show Employees Union, Local No. 714, International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America – (not eligible if hired after April 16, 2000)

Participation date

Date of becoming a covered employee

Definitions

Vesting service

One Year of Service is granted for each calendar year in which a participant completes at least 1,000 hours of service.

SCHEDULE SB ATTACHMENTS

Pension service

One year of credited service is granted for each calendar year in which a participant completes at least 1,441 hours. Reduced 0.1 for each 160 hours less than 1,600 (except 0.1 is credited if hours are greater than or equal to 80 and less than 161).

Normal retirement date (NRD)

Chicago, Detroit and Grand Rapids: Age 65.

Cleveland: Age 65, or age 62 with 30 years of vesting service.

Monthly pension benefit

Equal to credited service multiplied by the benefit unit in effect on the participant's last day worked.

Detroit

Last Day Worked	Benefit Unit
06/16/2000 – 06/15/2001	$29.00
06/16/2001 – 06/15/2002	30.00
06/16/2002 – 06/15/2003	31.00
06/16/2003 – 06/15/2004	33.00
06/16/2004 – 06/15/2005	34.00
06/16/2005 – 06/15/2006	35.00
06/16/2006 – 06/15/2007	36.00
06/16/2007 and later	39.00

Cleveland

Last Day Worked	Benefit Unit
11/01/1999 – 10/31/2002	$27.50
11/01/2002 – 10/31/2003	28.50
11/01/2003 – 10/31/2004	29.50
11/01/2004 – 10/31/2005	30.50
11/01/2005 – 10/31/2006	32.00
11/01/2006 – 10/31/2007	33.00
11/01/2007 – 10/31/2009	34.00
11/01/2009 – 10/31/2010	34.25
11/01/2010 – 10/31/2011	34.75
11/01/2011 – 10/31/2012	35.05
11/01/2012 – 10/31/2013	35.20
11/01/2013 – 10/31/2014	35.35
11/01/2014 – 10/31/2015	35.60
11/01/2015 and later	36.00

Grand Rapids

Last Day Worked	Benefit Unit
09/01/2001 – 08/31/2002	$30.00
09/01/2002 – 08/31/2003	31.00
09/01/2003 – 08/31/2004	33.00
09/01/2004 – 08/31/2005	34.00
09/01/2005 – 08/31/2006	35.00
09/01/2006 – 08/31/2007	36.00
09/01/2007 and later	39.00

SCHEDULE SB ATTACHMENTS

Chicago

Last Day Worked	Benefit Unit
04/16/1999 – 04/15/2000	$21.00
04/16/2000 – 04/15/2005	25.00
04/16/2005 and later	26.00

Monthly preretirement death benefit

55% of Joint & 55% Survivor benefit payable at earliest retirement date. (No charge for coverage.)

Eligibility for Benefits

Normal retirement

Retirement on NRD

Early retirement

Cleveland, Detroit and Grand Rapids: Age 60 and ten years of credited service, or age 55 with 85 points (age plus credited service).

Chicago: Age 60 and five years of credited service, or age 55 with 85 points (age plus credited service).

Postponed retirement

Retirement after NRD

Vested termination

A participant is 100% vested upon completion of 5 years of vesting service. However, all participants become 100% vested upon reaching Normal Retirement Age.

Disability

Cleveland, Detroit and Grand Rapids: 10 years of credited service (vesting service for Cleveland) and Permanent and Total Disability as determined by the Board.

Chicago: 5 years of vesting service and Permanent and Total Disability, as determined by the Board.

Preretirement death benefit

5 Years of Vesting Service and married at time of death

Benefits Paid Upon the Following Events

Normal retirement

The monthly pension benefit determined as of NRD

SCHEDULE SB ATTACHMENTS

Early retirement

Detroit: Monthly pension benefit adjusted according to the following table (interpolated to nearest month of age):

Age	Factor
62-65	1.000
61	0.933
60	0.867
59	0.808
58	0.752
57	0.694
56	0.635
55	0.579

Grand Rapids: Monthly pension benefit reduced by 5/9% per month for each complete month commencement precedes age 65. Benefit is unreduced if participant has 90 points.

Cleveland and Chicago: Monthly pension benefit reduced by 5/9% per month for each complete month commencement precedes age 65.

Alternative Early Retirement Benefit (Cleveland, Grand Rapids and Chicago only): Monthly pension Benefit plus $96.00 per month with the total reduced 5/9% per month for each complete month benefit commencement precedes age 62, less $96.00 per monthly payment after age 62.

Supplemental benefit

If age 55 with 20 years of credited service upon termination prior to age 60, it provides $600.00 per month. Upon termination at age 60, it provides $625.00 per month. Upon termination at age 61, it provides $650.00. Regardless of commencement age, benefit reduces to $420.00 per month from age 62 to 65. The supplement is prorated for less than 30 years of credited service, and is offset by the regular early retirement benefit being paid.

Postponed retirement

The monthly pension benefit determined as of the actual retirement date

Vested termination

The monthly pension benefit payable at age 65, reduced 5/9% per month for first 60 months prior to age 65, reduced an additional 5/18% per month for the next 60 months, and actuarially reduced for any additional months that benefit

	commencement precedes age 55. Unreduced benefit payable at any age for Grand Rapids participant with 10 years of credited service and 90 points.
Disablement	If a participant is eligible for an unreduced Federal Social Security Disability Insurance Benefit, then disability benefit is accrued benefit as of date of disability, with no reduction for early commencement, payable to age 65 if participant remains disabled. If participant is not eligible for an unreduced Federal Social Security Disability Insurance Benefit, then disability benefit is accrued benefit at date of disability multiplied by two. **For Cleveland Only:** Effective November 1, 2008, $68 per month multiplied by credited service. **For Detroit Only**: Benefit determined above is reduced by any benefit payable from company disability insurance.
Preretirement death	The monthly preretirement death benefit

SCHEDULE SB ATTACHMENTS

Other Plan Provisions

Forms of payment

In lieu of the normal form of payment, which is a straight life annuity, the following actuarially equivalent optional forms of payment are available:

- Ten Year Certain and Life
- Joint & 50%, 55%, 66 2/3%, 75% or 100% Contingent Annuity
- Lump sum

Actuarial equivalence for annuity options is based on a 7.5% interest rate and the 1983 GAM (unisex). Lump sum distributions are based on the GATT interest rate for the December preceding payment, rounded down to the next lowest 0.5%. Using the 1983 GAM (unisex) mortality table for lump sums prior to 2003, and the RR2001-62 mortality table beginning in 2003. Lump sums for participants eligible for Early Retirement are based on the accrued benefit (not including any supplement) reduced for immediate payments, otherwise based on the accrued benefit deferred to age 65.

Pension Increases

None

Plan participants' contributions

None

Maximum on benefits and pay

All benefits and pay for any calendar year may not exceed the maximum limitations for that year as defined in the Internal Revenue Code. The plan provides for increasing the dollar limits automatically as such changes become effective. Increases in the dollar limits are not assumed for determining contributions.

Future Plan Changes

No future plan changes were recognized in determining minimum and maximum contributions.

Changes in Benefits Valued Since Prior Year

There have been no changes in benefits valued since the prior year.

SCHEDULE SB ATTACHMENTS

Schedule SB, Line 32
Schedule of Amortization Bases
as of January 1, 2017

	Type of Base	Date Established	Initial Amount	Remaining Amortization Period (Years)	Outstanding Balance	Amortization Payment
1	Shortfall	01/01/2017	139,530	7	139,530	22,912
2	Shortfall	01/01/2016	193,017	6	171,365	31,891
3	Shortfall	01/01/2015	527,682	5	405,099	87,755
4	Shortfall	01/01/2014	(854,217)	4	(538,490)	(142,961)
5	Shortfall	01/01/2013	70,685	3	33,996	11,797
6	Shortfall	01/01/2012	476,499	2	147,965	75,490
7	Shortfall	01/01/2011	167,135	1	27,499	27,499
Total					386,964	114,383

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