

**CITY OF KNOXVILLE
INVITATION TO BID**

Motor Oil & Lubricants

Sealed bids, invited by the City of Knoxville, will be received by the Purchasing Agent of the City of Knoxville, in Room 667-674, City County Building; 400 Main Street; Knoxville, Tennessee, until 11:00:00 a.m. (Eastern Time) on March 26, 2021, at which time they will be opened and publicly read aloud and a contract awarded as soon thereafter as practicable.

BID SUBMISSION REQUIREMENTS

Bidders must furnish the following information in writing with their submission:

1. Bid Form showing bidder's name, address, quoted price, business license number, date of expiration of business license. A copy of the bidder's current business license may be submitted in lieu of providing the license expiration date.
2. Non-Collusion Affidavit
3. Iran Divestment Act Certification of Non-inclusion

INVITATION TO BID – INSTRUCTIONS AND CONDITIONS

1. Sealed bids will be received by the Purchasing Agent of the City of Knoxville in Room 667-674, City/County Building; 400 Main Street; Knoxville, Tennessee 37902 until March 26, **2021 at 11:00:00 a.m.**, at which time they will be publicly opened and read aloud and the contract awarded as soon as practicable. **No bid will be received or accepted after the above-specified time for the opening of bids.** Bids that arrive late due to the fault of U. S. Postal Service, United Parcel Service, DHL, FEDEX, any delivery/courier service, or any other carrier of any sort are still considered late and shall not be accepted by the City. Such bids shall remain unopened and will be returned to the submitting entity upon request.
2. The City of Knoxville reserves the right to reject any or all bids, to accept or reject any items thereon, to waive technicalities or informalities, to split orders if in the best interest of the City, to evaluate bids by various criteria, and to accept any bid which, in its opinion, may be for the best interest of the City.
3. Included in the Invitation to Bid is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this bid or any other bid. The Bidder will be required to execute and submit this affidavit with the sealed bid.
4. Each bid must be submitted in a sealed envelope, addressed to the Purchasing Agent, City of Knoxville, Room 667-674, City/County Building, 400 Main Street, Knoxville, Tennessee, 37902. Each sealed envelope containing a bid must be plainly marked on the outside as: "Motor Oil & Lubricants."
5. **NO CONTACT POLICY:** After the posting of this solicitation to the Purchasing Division's website, any contact initiated by any proposer with any City of Knoxville representative concerning this proposal is strictly prohibited, unless such contact is made with the Purchasing Division representative listed

herein or with said representative's authorization. Any unauthorized contact may cause the disqualification of the proposer from this procurement transaction.

6. **INCLEMENT WEATHER:** During periods of inclement weather, the Purchasing Division will enact the following procedures with regard to solicitations and weather delays:
 - If City offices are closed due to inclement weather on the date that bids/proposals/qualifications/letters of interest are due into the Purchasing Office, all solicitations due that same day will be moved to the next operational business day.
 - The City of Knoxville shall not be liable for any commercial carrier's decision regarding deliveries during inclement weather.
7. All bids must be made on the Bid Form supplied with the contract documents, and no interlineations, excisions, or special conditions shall be made or included in the Bid Evaluation Sheet by the Bidder. **Any bid on which there is an alteration of or departure from the Bid Form may be considered irregular and may be rejected.** All bids must be signed in full by the Bidder or Bidders in their business name or style when submitted and must show his or their complete address.
8. No bidder may withdraw his bid for a period of 60 days after the actual date of the opening thereof.
9. Prior to submitting their bids, bidders are to be registered with the Purchasing Division through the City of Knoxville's online Vendor Registration system. Instructions for registering on-line are available at www.knoxvilletn.gov/purchasing.
10. **Bid submissions from un-registered bidders may be rejected.**
11. Payment for completed services delivered to and accepted by the City shall be at the contract price.
12. State makes or brand on each item. If quoting on other than the make, model, or brand specified, the manufacturer's name and catalog number must be given, along with warranty information and detailed specifications. Because the City is committed to environmentally sound practices, brands are expected to be procured with environmental responsibility in mind.
13. Time of delivery is part of the consideration and must be stated in definite terms; time of delivery is guaranteed by the bidder and must be adhered to upon award. If time varies on different items, the bidder shall so state.
14. All quotations must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.
15. Samples of items, when required, must be furnished free of expense to the City and if not called for within fifteen (15) days from the date of bid opening, same will be disposed of in a manner deemed to be in the best interest of the City. Items shipped as a result of an Agreement to purchase (Purchase Order) must match the sample provided with Vendor's bid submission. The City of Knoxville will be the sole judge as to whether or not the shipped items match said supplied sample, and the City's decision will be final. Should shipped items not, in the City's judgment, be as represented by the sample provided, Vendor shall pay the City in full for all costs associated with returning shipped items to the Vendor. No restocking fee or other fees will be assessed against the City of Knoxville.
16. Bidders shall verify bids before submission, as bids cannot be withdrawn or corrected after being opened. Bids will be evaluated by unit price.

17. If federal excise tax applies, show amount of same and deduct. Bear in mind that the City is exempt from Tennessee sales tax.
18. Prices are considered FOB Knoxville unless otherwise stated in the Invitation to Bid.
19. By execution and delivery of a bid submission, the bidder agrees that any additional terms and conditions, whether submitted to the City purposely or inadvertently, shall have no force or effect.
20. Bidders must comply with the President's Executive Orders No. 11246 and 11375 which prohibit discrimination in employment regarding race, color, religion, sex or national origin. Bidders must not maintain or provide for their employees any facilities that are segregated on the basis of race, color, religion or national origin. Bidders must also comply with Title VI of the Civil Rights Act of 1964, Copeland Anti-Kick Back Act, the Contract Work Hours and Safety Standard Act, Section 402 of the Vietnam Veterans Adjustment Act of 1974 and Section 503 of the Rehabilitation Act of 1973, all of which are herein incorporated by reference.
21. All bidders must comply with Title VI of the Civil Rights Act of 1964, as codified in 42 U.S.C. 2000d. The successful bidder must follow Title VI guidelines in all areas including hiring practices, open facilities, insurance, and wages. The City of Knoxville reserves the right to review all compliance records by a contract compliance officer designated by the City.
22. No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally. Each request for such interpretation should be in writing addressed to **James Tucker, Senior Buyer** for the City of Knoxville, 400 Main Street, Room 667, Knoxville, TN 37902, or emailed to him at jtucker@knoxvilletn.gov. To be given consideration, such requests/questions must be received at least five (5) business days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted to the City's website at www.knoxvilletn.gov/purchasing. Submitting organizations are strongly encouraged to view this website often to see if addenda are posted. Failure of any bidder to receive such addendum or interpretation shall not relieve such Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.
23. Attention of all bidders is directed to the set off provision contained in Article II, Section 24-33, entitled, "Debts owed by persons receiving payments other than salary", and Section 2-1049 entitled "Receipt of benefits from City contracts by council members, employees, and officers of the City" of the Code of the City of Knoxville.
24. Before a Purchase Order is issued, the submitting entity, if selected, **must** provide the City Purchasing Division with a copy of its valid business license **or** with an affidavit explaining why it is exempt from the business licensure requirements of the city or county in which it is headquartered. If a contract is signed, the contractor's business license shall be kept current throughout the duration of the contract, and the contractor shall inform the City of changes in its business name or location. Any Agreement to purchase resulting from this Invitation to Bid shall be governed by and construed in accordance with the substantive laws of the State of Tennessee and its conflict of laws provisions. Venue for any action arising between the City and the Vendor from the Agreement shall lie in Knox County, Tennessee.
25. In compliance with Tennessee state law, bids must be accompanied by a certification attesting that, to the best of the bidder's knowledge, the bidder does not engage in investment activities in Iran. The Iran Divestment Act of 2014 Certification of Non-inclusion form may be found in this solicitation document.

26. By acceptance and delivery of the Purchase Order resulting from the award of this Invitation to Bid, the Vendor agrees to the following:

Contractor shall defend, indemnify and hold harmless the City, its officers, employees and agents from any and all liabilities which may accrue against the City, its officers, employees and agents or any third party for any and all lawsuits, claims, demands, losses or damages alleged to have arisen from an act or omission of Contractor in performance of this Agreement or from Contractor's failure to perform this Agreement using ordinary care and skill, except where such injury, damage, or loss was caused by the sole negligence of the City, its agents or employees.

Contractor shall save, indemnify and hold the City harmless from the cost of the defense of any claim, demand, suit or cause of action made or brought against the City alleging liability referenced above, including, but not limited to, costs, fees, attorney fees, and other expenses of any kind whatsoever arising in connection with the defense of the City; and Contractor shall assume and take over the defense of the City in any such claim, demand, suit, or cause of action upon written notice and demand for same by the City. Contractor will have the right to defend the City with counsel of its choice that is satisfactory to the City, and the City will provide reasonable cooperation in the defense as Contractor may request. Contractor will not consent to the entry of any judgment or enter into any settlement with respect to an indemnified claim without the prior written consent of the City, such consent not to be unreasonably withheld or delayed. The City shall have the right to participate in the defense against the indemnified claims with counsel of its choice at its own expense.

Contractor shall save, indemnify and hold City harmless and pay judgments that shall be rendered in any such actions, suits, claims or demands against City alleging liability referenced above.

The indemnification and hold harmless provisions of this Agreement shall survive termination of the Agreement.

CITY OF KNOXVILLE

BID FORM

TO: Purchasing Agent
City of Knoxville
Suite 667-674
City/County Building
400 Main Street
Knoxville, TN 37902

Having carefully examined the specifications for the "Motor Oil & Lubricants" to open on March 26, 2021 at 11:00 a.m. and the other Contract Documents and addenda, we hereby propose to furnish the items requested as specified.

GUARANTEE the item to be delivered no later than _____ days after receiving the order.
(Bidder must initial) _____

Firm Name: _____

Official Address: _____

(By)

(Name Typed)

(Title)

Date _____

Terms _____

Email address _____

Telephone _____

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____

County of _____

_____, being first duly sworn, deposes and says that:

- (1) He is owner, partner, officer, representative, or agent of _____ , the Bidder that has submitted the attached Bid;
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bid nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from proposing in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, firm, or person to fix any overhead, profit, or cost element of the bid price or the bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Knoxville or any person interested in the proposed Contract; and
- (5) The price or prices quoted in that attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

Signed: _____

Title: _____

Subscribed and sworn to before me this ____ day of _____, 2____.

My commission expires: _____

IRAN DIVESTMENT ACT

Certification of Noninclusion

NOTICE: Pursuant to the Iran Divestment Act, Tenn. Code Ann. § 12-12-106 requires the State of Tennessee Chief Procurement Officer to publish, using credible information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105. Inclusion on this list makes a person ineligible to contract with the state of Tennessee; if a person ceases its engagement in investment activities in Iran, it may be removed from the list. A list of entities ineligible to contract in the State of Tennessee Department of General Services or any political subdivision of the State may be found here:

https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106,_Iran_Divestment_Act_updated_7.7.17.pdf

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.

| | |
|--|---------------|
| Vendor Name (Printed) | Address |
| By (Authorized Signature) | Date Executed |
| Printed Name and Title of Person Signing | |

NOTARY PUBLIC:

Subscribed and sworn to before me this _____ day of _____, 2_____.

My commission expires: _____

DIVERSITY BUSINESS ENTERPRISE (DBE) PROGRAM

The City of Knoxville strongly encourages prime contractors to employ diverse businesses in the fulfillment of contracts/projects for the City of Knoxville.

The City of Knoxville's Fiscal Year 2017 goal is to conduct 3.33% of its business with minority-owned businesses, 9.21% of its business with women-owned businesses, and 45.5% with small businesses.

While the City cannot engage (pursuant to state law), in preferential bidding practices, the city does **strongly encourage** prime contractors to seek out and hire diverse businesses in order to help the city meet its goals as stated above. As such, the City encourages prime contractors to seek out and consider competitive sub-bids and quotations from diverse businesses.

For DBE tracking purposes, the City requests that prime contractors who are bidding, proposing, or submitting statements of qualifications record whether or not they plan to employ DBE's as sub-contractors or consultants. With that in mind, please fill out, sign and submit (with your bid/proposal) the following sub-contractor/consultant statement.

Subcontractor/Consultant Statement
(TO BE SUBMITTED IN THE BID/PROPOSAL ENVELOPE)

We _____ do certify that on the

 (Bidder/Proposer Company Name)

 (Project Name)
 (\$ _____)
 (Amount of Bid)

Please select one:

Option A: Intent to subcontract using Diverse Businesses

A Diversity business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s).
 The estimated **dollar value** of the amount that we plan to pay is:

\$ _____
 Estimated Amount of Subcontracted Service

| Diversity Business Enterprise Utilization | | | |
|--|--------|---|--------------------------|
| Description of Work/Project | Amount | Diverse Classification (MOB, WOB, SB, SDOV) | Name of Diverse Business |
| | | | |
| | | | |
| | | | |

Option B: Intent to perform work “without” using Diverse Businesses

We hereby certify that it is our intent to perform 100 % of the work required for the contract, work will be completed without subcontracting, or we plan to subcontract with non-Diverse companies.

DATE: _____ COMPANY NAME: _____

SUBMITTED BY: _____ TITLE: _____
 (Authorized Representative)

ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NO: _____

CITY OF KNOXVILLE DIVERSITY BUSINESS DEFINITIONS

Diversity Business Enterprise (DBE's) are minority-owned (MOB), women-owned (WOB), service-disabled veteran-owned (SDVO), and small businesses (SB), who are impeded from normal entry into the economic mainstream because of past practices of discrimination based on race or ethnic background. These persons must own at least 51% of the entity and operate or control the business on a daily basis.

Minority: A person who is a citizen or lawful admitted permanent resident of the United States and who is a member of one (1) of the following groups:

- a. African American, persons having origins in any of the Black racial groups of Africa;
- b. Hispanic American, persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race;
- c. Native American, persons who have origin in any of the original peoples of North America ;
- d. Asian American, person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

Minority-owned business (MOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more minority individuals.

Woman-owned business (WOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more women.

Service Disabled Veteran-owned business (SDOV) is a continuing, independent, for profit business that performs a commercially useful function, owned by any person who served honorably on active duty in the armed forces of the United States with at least a twenty percent (20%) disability that is service connected. Meaning such disability was incurred or aggravated in the line of duty in the active military, naval or air service, and is at least fifty-one percent (51%) owned and controlled by one (1) or more service disabled veteran.

Small Business (SB) is a continuing, independent, for profit business which performs a commercially useful function and has total gross receipts of not more than ten million dollars (\$10,000,000) average over a three-year period or employs no more than ninety-nine (99) persons on a full-time basis.

In addition to submission procedures listed within this solicitation document, the City provides the option of electronic submission. To submit your proposal/bid electronically, please follow the detailed instructions below.

Electronic Submission Procedures:

Electronic submissions shall be submitted online through the City's Procurement website. **DO NOT EMAIL YOUR SUBMISSION.** All proposers/bidders must register as a vendor in order to submit an electronic file.

Step One: Register as a City of Knoxville vendor

(Vendors are encouraged to complete this step **now** to ensure seamless submission process prior to deadline.)

To register as a vendor:

Visit the website at www.knoxvilletn.gov/purchasing

Click the "Vendor Registration" tab; then "Click here to register as a City of Knoxville Vendor"

Follow the prompts to complete online registration.

Note: You will be asked for a PIN. This PIN will be emailed to you and may have been sent to your spam or junk folder.

DO NOT WAIT UNTIL SUBMISSION DEADLINE TO REGISTER AS A VENDOR. The electronic submission link will be disabled at 11:00:00 a.m. Eastern time. Vendors will not have the ability to submit any electronic files once the deadline has passed.

Step Two:

Submit all materials electronically as one (1) file to City's Procurement website **PRIOR to 11:00:00 a.m. (Eastern Time) on March 26, 2021.**

To submit electronic file:

Visit the procurement website at www.knoxvilletn.gov/bids

Click "Motor Oil & Lubricants"

Click "Submit Bid" (red button located at top of screen)

Follow the prompts to upload and submit electronic file.

Submit only one (1) submission file (see notes below if must submit additional files)

Files **MUST** be named as the firm's name followed by the title of the project.

Example: BobsBurgers-AVSystemKFD.pdf

Should you need to merge multiple documents into one PDF, please utilize Google to download a free software intended for merging pdf documents



CITY OF KNOXVILLE
 OFFICE OF THE PURCHASING AGENT
 P.O. BOX 1631
 400 MAIN ST., ROOM 667
 KNOXVILLE, TN 37901

SEALED BID

THIS IS NOT AN ORDER

DATE: 03/18/2021 PAGE 1 Of 6

DOCUMENT NUMBER: **675689**

READ ALL INSTRUCTIONS AND CONDITIONS ON ATTACHED PAGES BEFORE BIDDING. BID ON THIS FORM ONLY. BID PRICE ON ITEMS LISTED OR EQUAL. NO BID RECEIVED AFTER CLOSING HOUR WILL BE ACCEPTED.

****ALL PRICES TO INCLUDE TRANSPORTATION CHARGES & NET TERMS UNLESS STATED OTHERWISE ****

Merchandise to be delivered to : See Contract Agreement

BID will be received at: Office of the Purchasing Agent, Room 667, 400 Main St., Knoxville, TN 37902, until 03/26/2021 11:00:00 AM

ENVELOPE TO BE SEALED AND MARKED: **MOTOR OIL & LUBRICANTS**

Special Instructions:

Supply to the City of Knoxville the necessary motor oils and other lubricants required by both equipment shops and to Knoxville Area Transit. Supplier is responsible for shipping and billing to the appropriate shop. Invoices must be presented to our shop personnel at the time of delivery. Please see the attached list for specifications and requirements. Detailed specification sheets on the oil being offered shall be submitted with the bid. This contract will be for a twelve month period with the option to renew for two additional one year periods. The contract will be in effect from 3-31-21 until 3-31-22. Prices quoted must include all applicable fees and miscellaneous charges. Please note that the delivery time must be reasonable and that the bulk product being delivered must be metered so that City personnel will know approximately how much product has been delivered. When a bulk product is being delivered, City personnel will not be responsible for administering any assistance in the delivery of the product. Delivery of all products must be during reasonable hours and the quantity delivered must be the quantity that was originally requested. Failure to adhere to the bid requirements as stated, will result in termination of the contract. Direct all questions to jtucker@knoxvilletn.gov.

| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|---|-------|------|------------|-------|---------------------|
| 1 | Gallon | 15W40 Diesel engine oil per attached specifications. Product to be supplied in one gallon containers. | | | | | |

IMPORTANT - State Merchandise

Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
 Email: jtucker@knoxvilletn.gov

 (Company Name)

 (Authorized Signature)

 (Print Signed Name)

 (Phone Number)

 (Email Address)



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ENVELOPE TO BE SEALED AND MARKED: **MOTOR OIL & LUBRICANTS**

| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|--|-------|------|------------|-------|---------------------|
| 2 | Each | 15W40 Diesel engine oil per attached specifications. Product to be supplied in 55 gallon containers. | | | | | |
| 3 | Each | 85W140 Differential/commercial gear lubricant per attached specifications. Product to be supplied in 5 gallon pails. | | | | | |
| 4 | Each | 75W90 Differential/commercial gear lubricant per attached specifications. Product to be supplied in 5 gallon pails. | | | | | |
| 5 | Each | 75W90 Differential/commercial gear lubricant per attached specifications. Product to be supplied in 120# drums. | | | | | |
| 6 | Each | 85W140 Differential/commercial gear lubricant per attached specifications. Product to be supplied in 120# drums. | | | | | |
| 7 | Each | 15W40 Diesel engine oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |

IMPORTANT - State Merchandise

Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
 Email: jtucker@knoxvilletn.gov

 (Company Name)

 (Authorized Signature)

 (Print Signed Name)

 (Phone Number)

 (Email Address)



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ENVELOPE TO BE SEALED AND MARKED: **MOTOR OIL & LUBRICANTS**

| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|--|-------|------|------------|-------|---------------------|
| 8 | Each | ISO 22 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |
| 9 | Each | ISO 32 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |
| 10 | Each | ISO 46 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |
| 11 | Each | ISO 68 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |
| 12 | Each | ISO 100 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |
| 13 | Each | ISO 150 viscosity grade hydraulic oil per attached specifications. Product to be supplied in new 330 gallon totes. | | | | | |

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Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
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(Company Name)

(Authorized Signature)

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| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|---|-------|------|------------|-------|---------------------|
| 14 | Each | NLGI Heavy duty multi-purpose grade 1 grease per attached specifications. Product to be supplied in tubes (cartridges). | | | | | |
| 15 | Each | NLGI Heavy duty multi-purpose grade 1 grease per attached specifications. Product to be supplied in 120 # kegs. | | | | | |
| 16 | Each | NLGI Heavy duty multi-purpose grade 2 grease per attached specifications. Product to be supplied in tubes (cartridges). | | | | | |
| 17 | Each | NLGI Heavy duty multi-purpose grade 2 grease per attached specifications. Product to be supplied in 120# kegs. | | | | | |
| 18 | Gallon | Synthetic commercial automatic transmission fluid per attached specifications. To be supplied in one gallon containers. | | | | | |
| 19 | Each | Synthetic commercial automatic transmission fluid per attached specifications. To be supplied in 55 gallon containers. | | | | | |

IMPORTANT - State Merchandise

Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
 Email: jtucker@knoxvilletn.gov

 (Company Name)

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BID will be received at: Office of the Purchasing Agent, Room 667, 400 Main St., Knoxville, TN 37902, until **03/26/2021 11:00:00 AM**

ENVELOPE TO BE SEALED AND MARKED: **MOTOR OIL & LUBRICANTS**

| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|---|-------|------|------------|-------|---------------------|
| 20 | Each | Synthetic commercial automatic transmission fluid per attached specifications. To be supplied in 330 gallon totes. | | | | | |
| 21 | Gallon | Castrol TranSynd transmission fluid per attached specifications. To be supplied in one gallon containers. | | | | | |
| 22 | Each | Castrol TranSynd transmission fluid per attached specifications. To be supplied in 55 gallon drums. | | | | | |
| 23 | Each | Castrol TranSynd transmission fluid per attached specifications. To be supplied in 330 gallon totes. | | | | | |
| 24 | Gallon | 15W40 Diesel engine oil per attached specifications. Product to be delivered in bulk quantities. | | | | | |
| 25 | Each | Diesel exhaust fluid. Must meet ISO 22241 requirements. See attached product specifications. To be supplied in 2-1/2 gallon containers. | | | | | |

IMPORTANT - State Merchandise

Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
 Email: jtucker@knoxvilletn.gov

 (Company Name)

 (Authorized Signature)

 (Print Signed Name)

 (Phone Number)

 (Email Address)



CITY OF KNOXVILLE
 OFFICE OF THE PURCHASING AGENT
 P.O. BOX 1631
 400 MAIN ST., ROOM 667
 KNOXVILLE, TN 37901

SEALED BID

THIS IS NOT AN ORDER

DATE: 03/18/2021 PAGE 6 Of 6

DOCUMENT NUMBER: **675689**

READ ALL INSTRUCTIONS AND CONDITIONS ON ATTACHED PAGES BEFORE BIDDING. BID ON THIS FORM ONLY. BID PRICE ON ITEMS LISTED OR EQUAL. NO BID RECEIVED AFTER CLOSING HOUR WILL BE ACCEPTED.

****ALL PRICES TO INCLUDE TRANSPORTATION CHARGES & NET TERMS UNLESS STATED OTHERWISE ****

Merchandise to be delivered to : See Contract Agreement

BID will be received at: Office of the Purchasing Agent, Room 667, 400 Main St., Knoxville, TN 37902, until 03/26/2021 11:00:00 AM

ENVELOPE TO BE SEALED AND MARKED: **MOTOR OIL & LUBRICANTS**

| No. | Quantity | Description | Brand | Unit | Unit Price | Total | Applicable Discount |
|-----|----------|--|-------|------|------------|-------|---------------------|
| 26 | Each | Diesel exhaust fluid. Must meet ISO 22241 requirements. See attached product specifications. To be supplied in new 330 gallon totes. | | | | | |
| 27 | Gallon | Diesel exhaust fluid. Must meet ISO 22241 requirements. See attached product specifications. To be supplied in bulk quantities. | | | | | |
| 28 | Each | 75W90 gear oil per attached specifications. Product to be supplied in 330 gallon totes. | | | | | |
| 29 | Drum | 75W90 gear oil per attached specifications. Product to be supplied in 55 gallon drums. | | | | | |
| 30 | Each | 85W140 gear oil per attached specifications. Product to be supplied in 330 gallon totes. | | | | | |
| 31 | Drum | 85W140 gear oil per attached specifications. Product to be supplied in 55 gallon drums. | | | | | |

IMPORTANT - State Merchandise

Delivery Date Here: _____

Buyer Name: Tucker, James
 Phone: 865-215-2064
 Fax: (865) 215-2277
 Email: jtucker@knoxvilletn.gov

 (Company Name)

 (Authorized Signature)

 (Print Signed Name)

 (Phone Number)

 (Email Address)

PLEASE NOTE: ON THE FOLLOWING PAGES, ONLY RESPOND TO THE SECTIONS THAT APPLY TO THE PRODUCTS THAT ARE LISTED IN THE BID DOCUMENT.

**City of Knoxville
Fleet Services
Oil and Lubricants**

Background

The intent of these specifications are to supply the City of Knoxville the necessary fluids and lubricants required by both City Fleet equipment shops and Knoxville Area Transit.

BRAND NAME OR EQUAL

The items in the specifications that are identified as "brand name or equal" reflect the physical and performance characteristics and level of quality that will satisfy the City's needs. To be considered,, offers of "equal" products must (1) Meet the salient physical, functional, or performance characteristic specified in the technical specifications; (2) Clearly identify the item by Brand name, if any; and/or the make or model number; and (3) *Include descriptive literature* such as illustrations or drawings. The City of Knoxville is not responsible for locating or obtaining any information not identified or submitted with the offer. Unless the bidder clearly indicates in its offer that the product being offered is an "equal" product, the bidder is expected to provide the brand name product referenced. Additionally, the City reserves the right to disqualify any alternate product that it considers unequal.

All bidders must meet all general requirements listed below. All responses shall be answered "Yes" or "No" under the Bidder's response column. "No" answers shall include Bidder's proposed substitution. In the best interest of the City of Knoxville, awards may be made to multiple vendors based upon price and services.

1. GENERAL SPECIFICATIONS

| | | BIDDER RESPONSE YES or NO |
|------------|--|---------------------------------|
| 1.1 | Contact Information Requirements: Oil and Lubricant Distributors shall provide contract manager contact information to include name, address, office telephone number, facsimile number and email address with the bid and shall maintain contact information up to date during the term of the agreement. | |
| 1.2 | Branded Jobber Requirement: Successful bidder shall be a branded jobber under contract with a manufacturing oil supplier and provide a letter from the manufacturer documenting the contract with the bid . | |
| 1.3 | Firm Fixed Pricing: Oil and lubricant distributor shall agree to enter into a contract with City of Knoxville and Knoxville Area Transit with a guaranteed price. The contract may be renewed for three (2) additional one (1) year periods, all upon the same terms and conditions, provided the pricing is firm and any adjustments have been pre-approved, service is satisfactory and both parties are willing to renew for an additional term. | |
| 1.4 | Price Adjustments: After the completion of the first year and any renewal terms thereof, the bidder may adjust the unit prices in accordance with the increase or decrease, if any, in the Producer Price Index (PPI), using as a basis of such adjustment the "PCU324191324191 Petroleum lubricating oil and grease mfg." ("Index") for the month prior to the term expiration (either April or October), published by the Bureau of Labor Statistics of the United States Dept. of Labor, excepting that the maximum annual increase shall not exceed 3.5% . | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| | | YES or NO |
|------|--|-----------|
| 1.5 | Product Written Warranty Requirement: Manufacturer shall provide a detailed written warranty for motor oil, automatic transmission fluid, gear oil, diesel exhaust fluid, hydraulic oil, and grease. | |
| 1.6 | ISO 9000 Certification Requirement: Manufacturer of products shall be ISO 9000 Certified. Documentation to verify ISO 9000 certification is required with bid. | |
| 1.7 | Warranty for Parts and Labor: Bidders will provide a warranty from the manufacturer for each product they provide. This warranty will state that each product is free of defective materials, design, and workmanship and is fit for the written recommended purpose of lubricating certain vehicular equipment, as further described by the manufacturer. Provided that the product is used pursuant to the manufacturer's specifications. The warranty will also require the manufacturer of the product to repair or replace, at its sole expense, engine parts that fail and /or experience abnormal wear because their product failed to provide the proper lubrication. These items may include, without limitation, internal engine components, turbo chargers, bearings, valves, and pumps. Additionally, provided that the product is used pursuant to the manufacturer's specifications. The warranty will require the manufacturer to repair or replace, at its sole expense, any and all components that suffer collateral damage due to the failure of an engine part for the lack of sufficient lubrication. These items may include, without limitation, turbo chargers, diesel particulate filters, valves, pumps and bearings. | |
| 1.8 | Certified Lubricant Specialist: Oil and lubricant distributors shall provide a local certified lubricant specialist who shall be assigned to this contract and shall provide recommendations based on engine oil and other lubricant sample reports. Certified lubricant specialist shall be available to meet with City and KAT Fleet Management to review sample analysis, recommend products to address failures and assist with the development of new equipment oil and lubricant specifications. | |
| 1.9 | Testing: All required testing shall be provided at no charge to the City and be handled by a third party testing laboratory. In-house testing will not be accepted. The City and KAT may request sample testing at each vehicle oil change and randomly at each oil delivery. Each section of these specifications shall provide detailed expectations regarding testing. | |
| 1.10 | Value Added Contributions: The supplier must be able to readily supply the following at no additional cost: <ul style="list-style-type: none"> • On-Site Lubrication Training <ul style="list-style-type: none"> a. General Lubrication b. Grease Lubrication & Application c. Gear and Transmission Lubrication d. Hydraulic Fluid e. Motor Oil f. Oil Analysis Training | |

**City of Knoxville
Fleet Services
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| 2. DIESEL ENGINE OIL REQUIREMENTS | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | |
|---|---|---------------------------------|--------------------|------------|---------------------|-------------------|-------------|----------------------|-------------------------------|------------------------|---------------------------|---------------------|--|---|--|--|
| 2.1 | <p>Standards: This standard is intended to specify the requirements necessary for ensuring proper engine maintenance and will be considered the mitigating factor in the selection and procurement process of extended drain performance API CK-4 15W40 engine oil and accompanying product and service contributions. It shall be used for all engine oil applications for protection against deposit formation, oil breakdown, parts wear, and loss of compression. The product must contain all of the following ingredients:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Synthetic Blend Base Oil</td> <td>Acid Neutralizers.</td> </tr> <tr> <td>Detergents</td> <td>Anti-Wear Additives</td> </tr> <tr> <td>Friction Reducers</td> <td>Dispersants</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Rust and Corrosion Inhibitors</td> </tr> <tr> <td>Pour Point Depressants</td> <td>Viscosity Index Improvers</td> </tr> <tr> <td>Anti-Foam Additives</td> <td></td> </tr> <tr> <td>Oil Soluble Synthetic Molybdenum Compound</td> <td></td> </tr> </table> | Synthetic Blend Base Oil | Acid Neutralizers. | Detergents | Anti-Wear Additives | Friction Reducers | Dispersants | Oxidation Inhibitors | Rust and Corrosion Inhibitors | Pour Point Depressants | Viscosity Index Improvers | Anti-Foam Additives | | Oil Soluble Synthetic Molybdenum Compound | | |
| Synthetic Blend Base Oil | Acid Neutralizers. | | | | | | | | | | | | | | | |
| Detergents | Anti-Wear Additives | | | | | | | | | | | | | | | |
| Friction Reducers | Dispersants | | | | | | | | | | | | | | | |
| Oxidation Inhibitors | Rust and Corrosion Inhibitors | | | | | | | | | | | | | | | |
| Pour Point Depressants | Viscosity Index Improvers | | | | | | | | | | | | | | | |
| Anti-Foam Additives | | | | | | | | | | | | | | | | |
| Oil Soluble Synthetic Molybdenum Compound | | | | | | | | | | | | | | | | |
| 2.2 | Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid. | | | | | | | | | | | | | | | |
| 2.3 | Product Specifications/Data Sheets: Successful bidder shall provide product specifications/data sheet from oil manufacturer with each oil delivery before product is delivered to City and KAT tanks. | | | | | | | | | | | | | | | |
| 2.4 | Oil Tank Wagon Delivery: Oil shall be delivered in a tank wagon that has met all of the quality requirements from Engine Oil Manufacturer. Bidder shall provide a letter from the manufacturer to support meeting this requirement with the bid. | | | | | | | | | | | | | | | |
| 2.5 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote <u>**note – each tote delivered must be a NEW, unused tote with quick change cam lock system</u> • Bulk delivery (KAT) | | | | | | | | | | | | | | | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| DIESEL ENGINE OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|--|--|---------------------------------|
| 2.6 | <p>Referenced Documents: Diesel engine oil must meet or exceed the following standards and manufacturers requirements.</p> <p>ASTM D 2270 Viscosity Index ASTM D 5293 Viscosity by Cold Cranking Simulator ASTM D 2896 Total Base Number (TBN) ASTM D 5158 Sulfur, Phosphorous/Zinc Content ASTM D 874 Sulfated Ash Content FTM 203C Stable Pour Point ASTM D 92 Flash Point API Service Classification: CK-4, CJ-4, CI-4, CI-4 Plus, CH-4 Plus, CH-4 ACEA E9 (2012), E7 &-04 (2004) MIL-PRF-2104G, CID-A-A-52306A and CID-A-A-S2039B Mack EO-O Premium Plus, EO-N MTU Type 2, Type 2.1 MAN 3575</p> <p>OEM engine manufacturers standards: Caterpillar ECF-1-A, ECF-2, ECF-3 Cummins CES 20081 Renault RVI RLD-3 Daimler Chrysler MB228.31, MB228.3 Detroit Diesel DFS 93K218, DFS 93k21S Volvo VDS-4, VDS-3</p> | |
| 2.7 | <p>Diesel Engine Oil Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Engine oil testing will be carried out at no additional charge by a City approved third party when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration: Copper, Iron, Chrome, Lead, Aluminum, Silicon, • Molybdenum, Sodium, Magnesium, Tin • Oil Additives: Zinc, Potassium, Phosphorus, Calcium • Oil Condition: Soot, Oxidation, Nitration, Sulfur Products, Oil Viscosity, Total Acid Number, Total Base Number • Contamination Tests: Water, Fuel, Antifreeze • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | |

**City of Knoxville
Fleet Services
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| DIESEL ENGINE OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | |
|---|---|---------------------------------|--------------|------------------------------------|-------------|---|----------------------|--|-----------|---------------------------------------|-------------------|--|------------------|-----------------------------------|--------------|------------------------------|------------------|--|
| 2.8 | <p>Diesel Engine Oil Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">SAE Grade</td> <td style="width: 50%;">15W40</td> </tr> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>134+</td> </tr> <tr> <td>ASTM D 5293 Viscosity, Cold Cranking Simulator</td> <td>6200 cP -20°C</td> </tr> <tr> <td>ASTM D 2896 Total Base Number (TBN)</td> <td>13</td> </tr> <tr> <td>ASTM D 5158 Phosphorus Content</td> <td>< 0.12%</td> </tr> <tr> <td>ASTM D 874 Sulfated Ash Content</td> <td>< 1.0%</td> </tr> <tr> <td>FTM 203C Stable Pour Point</td> <td>-17°F</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>>435°F</td> </tr> </table> | SAE Grade | 15W40 | ASTM D 2270 Viscosity Index | 134+ | ASTM D 5293 Viscosity, Cold Cranking Simulator | 6200 cP -20°C | ASTM D 2896 Total Base Number (TBN) | 13 | ASTM D 5158 Phosphorus Content | < 0.12% | ASTM D 874 Sulfated Ash Content | < 1.0% | FTM 203C Stable Pour Point | -17°F | ASTM D 92 Flash Point | >435°F | |
| SAE Grade | 15W40 | | | | | | | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | 134+ | | | | | | | | | | | | | | | | | |
| ASTM D 5293 Viscosity, Cold Cranking Simulator | 6200 cP -20°C | | | | | | | | | | | | | | | | | |
| ASTM D 2896 Total Base Number (TBN) | 13 | | | | | | | | | | | | | | | | | |
| ASTM D 5158 Phosphorus Content | < 0.12% | | | | | | | | | | | | | | | | | |
| ASTM D 874 Sulfated Ash Content | < 1.0% | | | | | | | | | | | | | | | | | |
| FTM 203C Stable Pour Point | -17°F | | | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | >435°F | | | | | | | | | | | | | | | | | |
| 2.9 | <p>Advanced Lubricant Performance: Oil shall be designed to provide advanced lubricant performance in modern, emissions treatment equipped diesel engines, including all types of Exhaust Gas Recirculation (EGR), Diesel Particulate Filters, (DEF), and other modern diesel technology. When used in conjunction with Ultra-Low Sulfur fuel, long-life, extended maintenance interval, and maximum engine durability and after-treatment cleanliness.</p> | | | | | | | | | | | | | | | | | |
| 2.10 | <p>Low Emission Engine Design: Oil shall be designed for new low emission engines with ULSD (2007 engines and beyond) and oil shall be fully compatible with pre-2007 diesel engines including 2018 and beyond.</p> | | | | | | | | | | | | | | | | | |
| 2.11 | <p>Minimum Specification Requirement for Diesel Engine Oil: Oil specifications shall meet Cummins Lubricating Specifications. Lubricating oil classifications are Cummins Engineering Standard CES 20081 and American Petroleum Institute API CJ-4/SL, API CJ/4, API CK/4</p> | | | | | | | | | | | | | | | | | |
| 2.12 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical oil analysis data reports for individual City or KAT vehicles on the oil analysis company's website and make that information available to City or KAT Fleet Management in pdf file format for the life of the vehicle.</p> | | | | | | | | | | | | | | | | | |
| 2.13 | <p>Oil Analysis Requirements: Successful Bidder shall supply oil analysis service and analyze samples if requested on every oil change on all equipment.</p> | | | | | | | | | | | | | | | | | |
| 2.14 | <p>Certificate of Analysis Requirement: Successful bidder may be asked to provide a certificate of oil analysis BEFORE product is scheduled to be delivered to any City or KAT location.</p> | | | | | | | | | | | | | | | | | |
| 2.15 | <p>Engine Maintenance with A System Purge: The bidder shall make available an engine System Purge to be used in four stroke and two stroke diesel or gasoline engines if needed.</p> | | | | | | | | | | | | | | | | | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| DIESEL ENGINE OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|--|---|---------------------------------|
| 2.16 | <p>OEM Requirements: The engine oil shall meet the following OEM specifications:</p> <ul style="list-style-type: none"> • API Service Classification: CK-4, CI-4, CI-4 Plus, CH-4 Plus, CH-4, • ACEA E&-04 (2004) • MIL-PRF-2104G, CID-A-A-52306A and CID-A-A-52039B • Mack EO-O Premium Plus • MTU Type2 • MAN 3275 • Caterpillar ECF-I-A, ECF-2, ECF-3 • Cummins CES20081 • Renault RVI RLD-3 • Daimler Chrysler MB228.31, MB228.3 • Detroit Diesel DDC 93K218 • Volvo VDS-4 | |

| 3. DIFFERENTIAL/COMMERCIAL GEAR LUBRICANT (GEAR OIL) REQUIREMENTS for 85W140 AND 75W90 | | BIDDER RESPONSE YES or NO |
|---|---|---------------------------------|
| 3.1 | <p>Standards: This standard is intended to specify the requirements necessary for ensuring proper gear lubrication and will be considered the mitigating factor in the selection and procurement process of a heavy-duty multi-grade gear oil and accompanying product and service contributions. The product must contain all of the following ingredients:</p> <ul style="list-style-type: none"> • Premium Grade Base Oil • Adhesive/Cobesive Polymers, Tackiness Agents • Seal Conditioners and Leak Inhibitors • Friction Reducers and Anti-Wear Additives • EP Additives and Shock Load Reducers • Oxidation Inhibitors • Rust and Corrosion Inhibitors • Anti-Foam Agents • Demulsifiers • Detergents and Dispersants • Pour Point Depressants | |
| 3.2 | <p>Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid.</p> | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| GEAR OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|-------------------------------|--|---------------------------------|
| 3.3 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • City and/or KAT obtains product in 120lb drums or 5 gallon pails • Successful bidder shall be responsible for removing empty drums at delivery | |
| 3.4 | <p>SAE Specifications Requirement: Gear Lubricants SAE Viscosity shall be 85W-140 and 75W90. SAE Specifications are J2360 Tested and Approved. API Specifications are GL-5. ArvinMeritor specification O76-B.</p> | |
| 3.5 | <p>ArvinMeritor Approval Requirement: Gear Lubricant shall be approved for ArvinMeritor TP-9539 extended drain specifications up to 500,000 miles. Successful bidder must provide documentation from manufacturer that product offered meets specifications for ArvinMeritor TP-9539 with the bid.</p> | |
| 3.6 | <p>Heavy Duty Commercial Requirement: Gear oil shall be engineered for heavy duty commercial axles and transmissions, load carrying capacity, extreme pressure properties, thermal stability at elevated gear oil temperatures, corrosion protection to protect parts from rust and corrosion, and heavy-duty industrial applications.</p> | |
| 3.7 | <p>Referenced Documents:</p> <p>ASTM D 2983 Brookfield Viscosity Test ASTM D 2270 Viscosity Index ASTM D 3233 Falex Load Test ASTM D 2783 Film Strength ASTM D 2783 Weld Point ASTM D 2783 Load Wear Index ASTM D 2782 Timken Method ASTM D 4172 Four-Ball (wear scar) ASTM D 130 Copper Corrosion ASTM D 2070 Thermal Stability Test ASTM D 892 Foam Test ASTM D 189 Conradson Carbon Residue ASTM D 3456 Channel Point ASTM D 97 Pour Point ASTM D 92 Flash Point ASTM D 92 Fire Point</p> | |
| 3.8 | <p>Gear Oil Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Gear oil testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> | |

**City of Knoxville
Fleet Services
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| GEAR OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|---|---|---------------|--------------|---------------------------------------|------------------------------|------------------------------|-----------------------------|-------------|--------------|-----------------------------|----------------------|----------------------|---------------------------|---------------------|---------------------|------------------------|-----------------|-----------------|-----------------------------|-------------|-------------|---------------------------|--------------------|--------------------|-----------------------------------|----------|----------|-----------------------------|----------------------|----------------------|------------------------------------|---|---|----------------------|---|---|-------------------------------------|--------|--------|------------------------|-------|---------|----------------------|---------|---------|-----------------------|---------|---------|----------------------|---------|---------|--|
| | <ul style="list-style-type: none"> • Wear Metal Concentration: Copper, Iron, Chrome, Lead, Aluminum, Silicon, Molybdenum, Sodium, Magnesium, Tin • Oil Additives: Zinc, Potassium, Phosphorus, Calcium • Oil Condition: Oil Viscosity • Contamination Tests: Water • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.9 | <p>Gear Oil Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 30%; text-align: center;">85W140</th> <th style="width: 35%; text-align: center;">75W90</th> </tr> </thead> <tbody> <tr> <td>ASTM D 2983 Brookfield Viscosity Test</td> <td>< 88,000 centipoise @ + 10°F</td> <td>< 135,000 centipoise @ -15°F</td> </tr> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>at least 95</td> <td>at least 105</td> </tr> <tr> <td>ASTM D 3233 Falex Load Test</td> <td>at least 2200 pounds</td> <td>at least 1700 pounds</td> </tr> <tr> <td>ASTM D 2783 Film Strength</td> <td>at least 23,000 psi</td> <td>at least 19,000 psi</td> </tr> <tr> <td>ASTM D 2783 Weld Point</td> <td>at least 395 kg</td> <td>at least 310 kg</td> </tr> <tr> <td>ASTM D 2783 Load Wear Index</td> <td>at least 65</td> <td>at least 55</td> </tr> <tr> <td>ASTM D 2782 Timken Method</td> <td>at least 55 pounds</td> <td>at least 55 pounds</td> </tr> <tr> <td>ASTM D 4172 Four-Ball (Wear Scar)</td> <td>< 0.30mm</td> <td>< 0.30mm</td> </tr> <tr> <td>ASTM D 130 Copper Corrosion</td> <td>at least a 1B rating</td> <td>at least a 1B rating</td> </tr> <tr> <td>ASTM D 2070 Thermal Stability Test</td> <td>pass rating, < 49% viscosity increase, < 0.9% pentane insolubles, < 0.8% toluene insolubles</td> <td>pass rating, < 26% viscosity increase, < 1.6% pentane insolubles, < 0.4% toluene insolubles</td> </tr> <tr> <td>ASTM D 892 Foam Test</td> <td>no foam produced after 5 and 10 minute interval</td> <td>no foam produced after 5 and 10 minute interval</td> </tr> <tr> <td>ASTM D 189 Conradson Carbon Residue</td> <td>< 1.4%</td> <td>< 1.0%</td> </tr> <tr> <td>FTM 3456 Channel Point</td> <td>< 0°F</td> <td>< -28°F</td> </tr> <tr> <td>ASTM D 97 Pour Point</td> <td>< +15°F</td> <td>< -15°F</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>> 420°F</td> <td>> 200°F</td> </tr> <tr> <td>ASTM D 92 Fire Point</td> <td>> 450°F</td> <td>> 440°F</td> </tr> </tbody> </table> | | 85W140 | 75W90 | ASTM D 2983 Brookfield Viscosity Test | < 88,000 centipoise @ + 10°F | < 135,000 centipoise @ -15°F | ASTM D 2270 Viscosity Index | at least 95 | at least 105 | ASTM D 3233 Falex Load Test | at least 2200 pounds | at least 1700 pounds | ASTM D 2783 Film Strength | at least 23,000 psi | at least 19,000 psi | ASTM D 2783 Weld Point | at least 395 kg | at least 310 kg | ASTM D 2783 Load Wear Index | at least 65 | at least 55 | ASTM D 2782 Timken Method | at least 55 pounds | at least 55 pounds | ASTM D 4172 Four-Ball (Wear Scar) | < 0.30mm | < 0.30mm | ASTM D 130 Copper Corrosion | at least a 1B rating | at least a 1B rating | ASTM D 2070 Thermal Stability Test | pass rating, < 49% viscosity increase, < 0.9% pentane insolubles, < 0.8% toluene insolubles | pass rating, < 26% viscosity increase, < 1.6% pentane insolubles, < 0.4% toluene insolubles | ASTM D 892 Foam Test | no foam produced after 5 and 10 minute interval | no foam produced after 5 and 10 minute interval | ASTM D 189 Conradson Carbon Residue | < 1.4% | < 1.0% | FTM 3456 Channel Point | < 0°F | < -28°F | ASTM D 97 Pour Point | < +15°F | < -15°F | ASTM D 92 Flash Point | > 420°F | > 200°F | ASTM D 92 Fire Point | > 450°F | > 440°F | |
| | 85W140 | 75W90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2983 Brookfield Viscosity Test | < 88,000 centipoise @ + 10°F | < 135,000 centipoise @ -15°F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | at least 95 | at least 105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 3233 Falex Load Test | at least 2200 pounds | at least 1700 pounds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2783 Film Strength | at least 23,000 psi | at least 19,000 psi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2783 Weld Point | at least 395 kg | at least 310 kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2783 Load Wear Index | at least 65 | at least 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2782 Timken Method | at least 55 pounds | at least 55 pounds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 4172 Four-Ball (Wear Scar) | < 0.30mm | < 0.30mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 130 Copper Corrosion | at least a 1B rating | at least a 1B rating | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2070 Thermal Stability Test | pass rating, < 49% viscosity increase, < 0.9% pentane insolubles, < 0.8% toluene insolubles | pass rating, < 26% viscosity increase, < 1.6% pentane insolubles, < 0.4% toluene insolubles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 892 Foam Test | no foam produced after 5 and 10 minute interval | no foam produced after 5 and 10 minute interval | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 189 Conradson Carbon Residue | < 1.4% | < 1.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FTM 3456 Channel Point | < 0°F | < -28°F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 97 Pour Point | < +15°F | < -15°F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | > 420°F | > 200°F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 Fire Point | > 450°F | > 440°F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| GEAR OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|-------------------------------|--|---------------------------------|
| 3.10 | Historical Vehicle Record Maintenance: Successful bidder shall maintain historical gear oil analysis data reports for individual City or KAT Fleet Management vehicles on the oil analysis company's website and make that information available to City or KAT Fleet Management on the company website in pdf file format for the life of the vehicle. | |
| 3.11 | Oil Analysis Requirements: Successful Bidder shall supply gear oil analysis service and analyze samples if requested on all equipment. | |
| 3.12 | Certificate of Analysis Requirement: Successful bidder may be asked to provide a certificate of gear oil analysis BEFORE product is scheduled to be delivered to any City or KAT location. | |
| 3.13 | Gear Maintenance with A System Purge: The bidder shall make available a System Purge to clean gear boxes of dirt, carbon, gum, and varnish deposits if needed. | |
| 3.14 | Viscosity Requirements: The gear oil shall be made available in two multi-grade viscosities of 75W90 and 85W140. These multi-grade viscosities shall replace several single-grade gear oils, reducing gear oil inventory. The multi-grade viscosity shall allow a wider operating temperature range and better utility in cold applications. | |

| 4. TRACTOR OIL REQUIREMENTS | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | |
|----------------------------------|---|----------------------------------|-----------------|-------------------|----------------------|----------------------|--------------|------------------|-------------------------|------------------|-----------------|------------------------|-------------------|-------------------|---------------------|--------------------|--|--|
| 4.1 | <p>Standards: This standard is intended to specify the requirements necessary for ensuring proper tractor system maintenance and will be considered the mitigating factor in the selection and procurement process of a premium single grade oil and accompanying product and service contributions. The product shall be used for all industrial, construction, and single viscosity hydraulic and turbine applications for protection against leaking seals, contaminants, pump wear, and erratic operation. The product must contain all of the following ingredients:</p> <table style="width: 100%; border: none;"> <tr> <td>Premium Synthetic Blend Base Oil</td> <td>Leak Inhibitors</td> </tr> <tr> <td>Seal Conditioners</td> <td>Corrosion Inhibitors</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Demulsifiers</td> </tr> <tr> <td>Anti-Wear Agents</td> <td>Extreme Pressure Agents</td> </tr> <tr> <td>Anti-Foam Agents</td> <td>Rust Inhibitors</td> </tr> <tr> <td>Pour Point Depressants</td> <td>Friction Reducers</td> </tr> <tr> <td>Sludge Inhibitors</td> <td>Shock Load Reducers</td> </tr> <tr> <td>Metal Deactivators</td> <td></td> </tr> </table> | Premium Synthetic Blend Base Oil | Leak Inhibitors | Seal Conditioners | Corrosion Inhibitors | Oxidation Inhibitors | Demulsifiers | Anti-Wear Agents | Extreme Pressure Agents | Anti-Foam Agents | Rust Inhibitors | Pour Point Depressants | Friction Reducers | Sludge Inhibitors | Shock Load Reducers | Metal Deactivators | | |
| Premium Synthetic Blend Base Oil | Leak Inhibitors | | | | | | | | | | | | | | | | | |
| Seal Conditioners | Corrosion Inhibitors | | | | | | | | | | | | | | | | | |
| Oxidation Inhibitors | Demulsifiers | | | | | | | | | | | | | | | | | |
| Anti-Wear Agents | Extreme Pressure Agents | | | | | | | | | | | | | | | | | |
| Anti-Foam Agents | Rust Inhibitors | | | | | | | | | | | | | | | | | |
| Pour Point Depressants | Friction Reducers | | | | | | | | | | | | | | | | | |
| Sludge Inhibitors | Shock Load Reducers | | | | | | | | | | | | | | | | | |
| Metal Deactivators | | | | | | | | | | | | | | | | | | |
| 4.2 | Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid. | | | | | | | | | | | | | | | | | |

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| TRACTOR OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|----------------------------------|---|---------------------------------|
| 4.3 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 5 gallon pail • 55 gallon drum • 330 gallon tote **note – each tote delivered must be a NEW, unused tote with quick change cam lock system • | |
| 4.4 | <p>Referenced Documents:</p> <p>ASTM D 2983 - Brookfield Viscosity Test ASTM D 2270 - Viscosity Index ASTM D 2882 - Vickers Vane Pump Wear Test ASTM D 97 - Pour Point ASTM D 1401 - Demulsibility ASTM D 92 - Flash Point ASTM D 943 - Oxidation Stability ASTM D 665 A&B - Rust Test ASTM D 130 - Copper Corrosion ASTM D 4172 - Four Ball Wear Scar</p> | |
| 4.5 | <p>Tractor Oil Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Tractor oil testing will be carried out at no additional charge by the supplier when requested by the City to establish the following:</p> <ul style="list-style-type: none"> • Wear Metals Concentration • Oil Additives • Oil Condition • Contamination Tests • Large Particle Detection • ISO Cleanliness Codes <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | |
| 4.6 | <p>Viscosity Requirements</p> <p>The tractor oil must be a single grade viscosity of ISO 22, 32, 46, 68</p> | |

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| TRACTOR OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------------------------|--|-------------------------------|------|---|-------------------|------------------------|---------|-----------------------------|-------------|-------------------------|---------|----------------------------------|-----------------|----------------------------|-------------------|-------------------------------|-----------|-----------------------------------|----------|--|
| 4.7 | <p>Tractor Oil Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">ASTM D 2983 - Viscosity Test</td> <td style="width: 50%; padding: 5px;">ISO 22: 22.3 @ 40°C & 4.5 @100°C • ISO 32: 32.0 & 5.6 • ISO 46: 43.6 & 6.8 • ISO 68: 66.2 & 9.0</td> </tr> <tr> <td style="padding: 5px;">ASTM D 2270 - Viscosity Index</td> <td style="padding: 5px;">>110</td> </tr> <tr> <td style="padding: 5px;">ASTM D 2882 - Vickers Vane Pump Wear Test</td> <td style="padding: 5px;">< 25.0 milligrams</td> </tr> <tr> <td style="padding: 5px;">ASTM D 97 - Pour Point</td> <td style="padding: 5px;">≤ -28°F</td> </tr> <tr> <td style="padding: 5px;">ASTM D 1401 - Demulsibility</td> <td style="padding: 5px;">< 5 minutes</td> </tr> <tr> <td style="padding: 5px;">ASTM D 92 - Flash Point</td> <td style="padding: 5px;">> 410°F</td> </tr> <tr> <td style="padding: 5px;">ASTM D 943 - Oxidation Stability</td> <td style="padding: 5px;">up to 6,000 hrs</td> </tr> <tr> <td style="padding: 5px;">ASTM D 665 A&B - Rust Test</td> <td style="padding: 5px;">Pass BOTH methods</td> </tr> <tr> <td style="padding: 5px;">ASTM D 130 - Copper Corrosion</td> <td style="padding: 5px;">1A Rating</td> </tr> <tr> <td style="padding: 5px;">ASTM D 4172 - Four Ball Wear Scar</td> <td style="padding: 5px;">≤ 0.27mm</td> </tr> </table> | ASTM D 2983 - Viscosity Test | ISO 22: 22.3 @ 40°C & 4.5 @100°C • ISO 32: 32.0 & 5.6 • ISO 46: 43.6 & 6.8 • ISO 68: 66.2 & 9.0 | ASTM D 2270 - Viscosity Index | >110 | ASTM D 2882 - Vickers Vane Pump Wear Test | < 25.0 milligrams | ASTM D 97 - Pour Point | ≤ -28°F | ASTM D 1401 - Demulsibility | < 5 minutes | ASTM D 92 - Flash Point | > 410°F | ASTM D 943 - Oxidation Stability | up to 6,000 hrs | ASTM D 665 A&B - Rust Test | Pass BOTH methods | ASTM D 130 - Copper Corrosion | 1A Rating | ASTM D 4172 - Four Ball Wear Scar | ≤ 0.27mm | |
| ASTM D 2983 - Viscosity Test | ISO 22: 22.3 @ 40°C & 4.5 @100°C • ISO 32: 32.0 & 5.6 • ISO 46: 43.6 & 6.8 • ISO 68: 66.2 & 9.0 | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2270 - Viscosity Index | >110 | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2882 - Vickers Vane Pump Wear Test | < 25.0 milligrams | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 97 - Pour Point | ≤ -28°F | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 1401 - Demulsibility | < 5 minutes | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 - Flash Point | > 410°F | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 943 - Oxidation Stability | up to 6,000 hrs | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 665 A&B - Rust Test | Pass BOTH methods | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 130 - Copper Corrosion | 1A Rating | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 4172 - Four Ball Wear Scar | ≤ 0.27mm | | | | | | | | | | | | | | | | | | | | | |
| 4.8 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical tractor oil analysis data reports for individual City Fleet Management vehicles on the oil analysis company's website and make that information available to City Fleet Management on the company website in pdf file format for the life of the vehicle.</p> | | | | | | | | | | | | | | | | | | | | | |
| 4.9 | <p>Maintenance with A System Purge: The bidder shall make available a hydraulic and turbine System Purge to flush and clean the system of dirt, carbon, gum and varnish deposits.</p> | | | | | | | | | | | | | | | | | | | | | |

**City of Knoxville
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| 5. DIESEL EXHAUST FLUID | | BIDDER RESPONSE YES or NO |
|-------------------------|--|---------------------------------|
| 5.1 | Standards: DEF product shall be blended with high purity synthetic urea dissolved in deionized water. It shall meet ISO 22241-1 and shall be certified by API. | |
| 5.2 | Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging) <ul style="list-style-type: none"> • 2 ½ gallon jugs | |
| 5.3 | Date Code Requirement Diesel Exhaust Fluid successful bidder shall provide date code on all invoice and delivery documents. Date code shall provide age of product. Diesel Exhaust Fluid date code shall have a maximum date code of six months. | |
| 5.4 | Product Data Sheet Requirement: Successful bidder shall provide current product data sheet to review specifications and typical test data with the bid. | |

| 6. HYDRAULIC OIL REQUIREMENTS | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | |
|-------------------------------|---|---------------------------------|-----------------|---------------------|----------------------|----------------------|--------------|------------------|-------------------------|---------------------------|------------------|-----------------|------------------------|-------------------|-------------------|---------------------|--------------------|--|
| 6.1 | Standards: This standard is intended to specify the requirements necessary for ensuring proper hydraulic maintenance for universal hydraulics and will be considered the mitigating factor in the selection and procurement process of premium multigrade hydraulic oil and accompanying product and service contributions. The product must contain: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Seal Conditioners</td> <td style="width: 50%;">Leak Inhibitors</td> </tr> <tr> <td>Red Color Indicator</td> <td>Corrosion Inhibitors</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Dcmulsifiers</td> </tr> <tr> <td>Anti-Wear Agents</td> <td>Extreme Pressure Agents</td> </tr> <tr> <td>Viscosity Index Improvers</td> <td>Anti-Foam Agents</td> </tr> <tr> <td>Rust Inhibitors</td> <td>Pour Point Depressants</td> </tr> <tr> <td>Friction Reducers</td> <td>Sludge Inhibitors</td> </tr> <tr> <td>Shock Load Reducers</td> <td>Metal Deactivators</td> </tr> </table> | Seal Conditioners | Leak Inhibitors | Red Color Indicator | Corrosion Inhibitors | Oxidation Inhibitors | Dcmulsifiers | Anti-Wear Agents | Extreme Pressure Agents | Viscosity Index Improvers | Anti-Foam Agents | Rust Inhibitors | Pour Point Depressants | Friction Reducers | Sludge Inhibitors | Shock Load Reducers | Metal Deactivators | |
| Seal Conditioners | Leak Inhibitors | | | | | | | | | | | | | | | | | |
| Red Color Indicator | Corrosion Inhibitors | | | | | | | | | | | | | | | | | |
| Oxidation Inhibitors | Dcmulsifiers | | | | | | | | | | | | | | | | | |
| Anti-Wear Agents | Extreme Pressure Agents | | | | | | | | | | | | | | | | | |
| Viscosity Index Improvers | Anti-Foam Agents | | | | | | | | | | | | | | | | | |
| Rust Inhibitors | Pour Point Depressants | | | | | | | | | | | | | | | | | |
| Friction Reducers | Sludge Inhibitors | | | | | | | | | | | | | | | | | |
| Shock Load Reducers | Metal Deactivators | | | | | | | | | | | | | | | | | |
| 6.2 | Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid. | | | | | | | | | | | | | | | | | |
| 6.3 | Hydraulic Oil Minimum Specification Requirement: Hydraulic oil shall be Premium Quality Hydraulic Oil. Hydraulic oil shall be high performance anti-wear oil manufactured to meet high pressure demands and industrial equipment. | | | | | | | | | | | | | | | | | |
| 6.4 | ISO Viscosity Requirement: ISO Viscosity Grade shall be 22, 32, 46, 68, 100, and 150. | | | | | | | | | | | | | | | | | |

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| HYDRAULIC OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|------------------------------------|--|---------------------------------|
| 6.5 | <p>Delivery/Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 330 gallon tote **note – each tote delivered must be a NEW, unused tote with quick change cam lock system | |
| 6.6 | <p>Referenced Documents:</p> <p>ASTM D 2602 Viscosity By Cold Cranking Simulator ASTM D 2270 Viscosity Index ASTM D 4172 Four-Ball (wear scar) ASTM D 2782 Timken Method ASTM D 97 Pour Point ASTM D 1401 Water Separation ASTM D 92 Flash Point ASTM D 92 Fire Point ASTM D 189 Carbon Residue</p> | |
| 6.7 | <p>Hydraulic Oil Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Hydraulic oil testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration: Copper, Iron, Chrome, Lead, Aluminum, Silicon, Molybdenum, Sodium, Magnesium, Tin • Oil Additives: Zinc, Potassium, Phosphorus, Calcium • Oil Condition: Oil Viscosity • Contamination Tests: Water • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | |
| 6.8 | <p>Viscosity Requirements</p> <p>The hydraulic oil shall have a multi-grade viscosity of AW-46. This multi-grade viscosity shall replace several single-grade hydraulic oils, reducing hydraulic oil inventory.</p> | |

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HYDRAULIC OIL REQUIREMENTS (con't)

| | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | | | |
|--|---|--|---|------------------------------------|-------|--|--------------------|----------------------------------|----------|-----------------------------|----------|-------------------------------------|--------------|------------------------------|---------|-----------------------------|---------|----------------------------------|---------|--|
| 6.9 | <p>Hydraulic Oil Minimum Test Data Requirements:</p> <table border="1" style="margin-left: 40px;"> <tr> <td>ASTM D 2602 Viscosity At 40°C & 100°C</td> <td>at 40°C, 61.3 cst, and at 100°C, 9.7 cst.</td> </tr> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>> 141</td> </tr> <tr> <td>ASTM D 4172 Four-Ball (wear scar)</td> <td>< 0.40 millimeters</td> </tr> <tr> <td>ASTM D 2782 Timken Method</td> <td>> 30 Lbs</td> </tr> <tr> <td>ASTM D 97 Pour Point</td> <td>< - 35°F</td> </tr> <tr> <td>ASTM D 1401 Water Separation</td> <td>< 15 minutes</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>> 400°F</td> </tr> <tr> <td>ASTM D 92 Fire Point</td> <td>> 415°F</td> </tr> <tr> <td>ASTM D 189 Carbon Residue</td> <td>< 0.05%</td> </tr> </table> | ASTM D 2602 Viscosity At 40°C & 100°C | at 40°C, 61.3 cst, and at 100°C, 9.7 cst. | ASTM D 2270 Viscosity Index | > 141 | ASTM D 4172 Four-Ball (wear scar) | < 0.40 millimeters | ASTM D 2782 Timken Method | > 30 Lbs | ASTM D 97 Pour Point | < - 35°F | ASTM D 1401 Water Separation | < 15 minutes | ASTM D 92 Flash Point | > 400°F | ASTM D 92 Fire Point | > 415°F | ASTM D 189 Carbon Residue | < 0.05% | |
| ASTM D 2602 Viscosity At 40°C & 100°C | at 40°C, 61.3 cst, and at 100°C, 9.7 cst. | | | | | | | | | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | > 141 | | | | | | | | | | | | | | | | | | | |
| ASTM D 4172 Four-Ball (wear scar) | < 0.40 millimeters | | | | | | | | | | | | | | | | | | | |
| ASTM D 2782 Timken Method | > 30 Lbs | | | | | | | | | | | | | | | | | | | |
| ASTM D 97 Pour Point | < - 35°F | | | | | | | | | | | | | | | | | | | |
| ASTM D 1401 Water Separation | < 15 minutes | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | > 400°F | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 Fire Point | > 415°F | | | | | | | | | | | | | | | | | | | |
| ASTM D 189 Carbon Residue | < 0.05% | | | | | | | | | | | | | | | | | | | |
| 6.10 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical oil analysis data reports for individual City or KAT Fleet Management vehicles on the oil analysis company's website and make that information available to City or KAT Fleet Management on the company website in pdf file format for the life of the vehicle.</p> | | | | | | | | | | | | | | | | | | | |
| 6.11 | <p>Hydraulic Oil Analysis Requirements: Successful Bidder shall supply oil analysis service and analyze samples if requested on every oil change on all equipment.</p> | | | | | | | | | | | | | | | | | | | |
| 6.12 | <p>Hydraulic Maintenance with A System Purge: The bidder shall make available a hydraulic System Purge to flush and clean the system of dirt, carbon, gum and varnish deposits.</p> | | | | | | | | | | | | | | | | | | | |
| 6.13 | <p>OEM Requirements: The hydraulic oil shall meet the following OEM specifications:</p> <ul style="list-style-type: none"> • DEUTZ-ALLIS PF821 XL • CASE HYTRAN PLUS, MS1206 • JOHN DEERE J20C • FORD, NEW HOLLAND ESN-M2CI34-D • MASSEY-FERGUSON PERMATRAN, M1127A • WHITE FARM EQUIPMENT Q1826 • KUBOTA UNIVERSAL TRACTOR FLUID, UDT • STEIGER SEMS 17001 • VERSATILE HYGEAR FLUID 23M, 24M • ALLISON C-4 • CATERPILLAR TO-2 • API GL-4 | | | | | | | | | | | | | | | | | | | |

**City of Knoxville
Fleet Services
Oil and Lubricants**

| | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | |
|--|--|---------------------------------|-----------------------|-------------------------------|-------------------------|---|----------------------|-------------------------------|----------------------|--|--|----------|--|--|
| 7. HEAVY-DUTY GREASE | | | | | | | | | | | | | | |
| 7.1 | <p>Standards: This standard is intended to specify the requirements necessary for ensuring proper lubrication and will be considered the mitigating factor in the selection and procurement process of heavy-duty multi-purpose grease and accompanying product and service contributions. The grease shall be a moly-based NLG1 Grade 1 and 2 grease.</p> <p>The product must contain all of the following ingredients:</p> <table style="width: 100%; border: none;"> <tr> <td>Premium Grade Base Oil</td> <td>Aluminum Complex Base</td> </tr> <tr> <td>Rust and Corrosion Inhibitors</td> <td>Extreme Pressure Agents</td> </tr> <tr> <td>Anti-Wear and Friction Reducing Additives</td> <td>Oxidation Inhibitors</td> </tr> <tr> <td>Shock Load Reducers Additives</td> <td>Molybdenum Disulfide</td> </tr> <tr> <td>Adhesive/Cohesive Polymers, Tackiness Agents</td> <td></td> </tr> <tr> <td>Graphite</td> <td></td> </tr> </table> | Premium Grade Base Oil | Aluminum Complex Base | Rust and Corrosion Inhibitors | Extreme Pressure Agents | Anti-Wear and Friction Reducing Additives | Oxidation Inhibitors | Shock Load Reducers Additives | Molybdenum Disulfide | Adhesive/Cohesive Polymers, Tackiness Agents | | Graphite | | |
| Premium Grade Base Oil | Aluminum Complex Base | | | | | | | | | | | | | |
| Rust and Corrosion Inhibitors | Extreme Pressure Agents | | | | | | | | | | | | | |
| Anti-Wear and Friction Reducing Additives | Oxidation Inhibitors | | | | | | | | | | | | | |
| Shock Load Reducers Additives | Molybdenum Disulfide | | | | | | | | | | | | | |
| Adhesive/Cohesive Polymers, Tackiness Agents | | | | | | | | | | | | | | |
| Graphite | | | | | | | | | | | | | | |
| 7.2 | <p>Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid.</p> | | | | | | | | | | | | | |
| 7.3 | <p>Operating Temperature</p> <ul style="list-style-type: none"> • The grease must have a continuous operating temperature range of minimum 18°C up to a maximum 135°C (approx. 0°F up to a maximum 275°F) • The grease must have a maximum intermittent operating temperature of 204°C (400°F). | | | | | | | | | | | | | |
| 7.4 | <p>Delivery/Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • Tubes (cartridges) and 120lb kegs • Successful bidder shall remove empty kegs from property at delivery. | | | | | | | | | | | | | |
| 7.5 | <p>Referenced Documents:</p> <p>ASTM D 217 Multistroke Penetration ASTM D 1263 Wheel Bearing Leakage ASTM D 942 Bomb Oxidation ASTM D 1264 Water Washout ASTM D 4049 Water Spray-Off FTM 321.3 Oil Separation (Static) ASTM D 1742 Pressure Oil Separation ASTM D 2596 Four-Ball ASTM D 2509 Timken Method ASTM D 2266 Four-Ball (Wear Scar) ASTM D 1743 Rust Test ASTM D 130 Copper Corrosion ASTM D 4693 Low-Temperature Torque US STEEL LT37 Mobility ASTM D 2265 Dropping Point</p> | | | | | | | | | | | | | |

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HEAVY-DUTY GREASE (con't)

BIDDER
RESPONSE
YES or NO

7.6 Grease Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:

- Shear Stability
- Oxidation Resistance
- Water Resistance
- Bleed Resistance
- Extreme Pressure, Anti-Wear- Tests
- Corrosion – rust, copper
- Pumpability

Test results will be made available along with written maintenance recommendations from the third-party laboratory.

7.7 Grease Minimum Test Data Requirements:

| | |
|-------------------------------------|---|
| ASTM D 217 Multistroke Penetration | <5.3 % change |
| ASTM D 1263 Wheel Bearing Leakage | <5 % loss |
| ASTM D 942 Bomb Oxidation | no more than 9 psi loss @ 500 hours |
| ASTM D 1264 Water Washout | <2.55% loss |
| ASTM D 4049 Water Spray-Off | <2 % loss |
| FTM 321.3 Oil Separation (Static) | <0.15% separation |
| ASTM D 1742 Pressure Oil Separation | <0.15% separation |
| ASTM D 2596 Four-Ball | At least 800 Kg Weld, 101 Load Wear Index |
| ASTM D 2509 Timken Method | At least 65 lbs. |
| ASTM D 2266 Four-Ball (Wear Scar) | <0.41mm |
| ASTM D 1743 Rust Test | 1,1,1 pass rating |
| ASTM D 130 Copper Corrosion | At least 1B rating |
| ASTM D 4693 Low-Temperature Torque | @-20°F, no more than 0.6 Newton meters; 10 minutes, 0.3 Newton meters |
| US STEEL LT37 Mobility | At least 5.3 g/minute |
| ASTM D 2265 Dropping Point | At least 500°F (260°C) |

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| 8. AUTOMOTIVE GASOLINE ENGINE OIL REQUIREMENTS | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | |
|--|--|---------------------------------|-------------------|------------|---------------------|-------------------|-------------|----------------------|-------------------------------|------------------------|---------------------------|------------------------|---------------------|--|
| 8.1 | <p>Standards: This standard is intended to specify the requirements necessary for ensuring proper engine maintenance and will be considered the mitigating factor in the selection and procurement process of extended drain performance multi-grade engine oil and accompanying product and service contributions. Oil product shall be premium engine oil and shall protect against deposit formation, sludge, engine wear, high-temperature oxidation, and help prevent viscosity increase.</p> <p>The product must contain all of the following ingredients:</p> <table style="width: 100%; border: none;"> <tr> <td>Synthetic Blend Base Oil</td> <td>Acid Neutralizers</td> </tr> <tr> <td>Detergents</td> <td>Anti-Wear Additives</td> </tr> <tr> <td>Friction Reducers</td> <td>Dispersants</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Rust and Corrosion Inhibitors</td> </tr> <tr> <td>Pour Point Depressants</td> <td>Viscosity Index Improvers</td> </tr> <tr> <td>Oil Soluble Molybdenum</td> <td>Anti-Foam Additives</td> </tr> </table> | Synthetic Blend Base Oil | Acid Neutralizers | Detergents | Anti-Wear Additives | Friction Reducers | Dispersants | Oxidation Inhibitors | Rust and Corrosion Inhibitors | Pour Point Depressants | Viscosity Index Improvers | Oil Soluble Molybdenum | Anti-Foam Additives | |
| Synthetic Blend Base Oil | Acid Neutralizers | | | | | | | | | | | | | |
| Detergents | Anti-Wear Additives | | | | | | | | | | | | | |
| Friction Reducers | Dispersants | | | | | | | | | | | | | |
| Oxidation Inhibitors | Rust and Corrosion Inhibitors | | | | | | | | | | | | | |
| Pour Point Depressants | Viscosity Index Improvers | | | | | | | | | | | | | |
| Oil Soluble Molybdenum | Anti-Foam Additives | | | | | | | | | | | | | |
| 8.2 | Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid. | | | | | | | | | | | | | |
| 8.3 | American Petroleum Institute (API) Service Categories: API service categories shall be SN, SM, SL, SJ, and all previous API "S" categories. ILSAC GF-5 (SAE 5W-20, 5W-30, 10W-30) | | | | | | | | | | | | | |
| 8.4 | Viscosity Requirements The engine oil shall be made available in three multi-grade viscosities of 5W20, 5W30, and 10W30. Multi-grade viscosities provide a wider operating temperature range and eliminate need to switch oil grades in different seasons. | | | | | | | | | | | | | |
| 8.5 | Oil Tank Wagon Delivery: Oil shall be delivered in a tank wagon that has met all of the quality requirements from Engine Oil Manufacturer. Bidder shall provide a letter from the manufacturer to support meeting this requirement with the bid. | | | | | | | | | | | | | |
| 8.6 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote **note – each tote delivered must be a NEW, unused tote with quick change cam lock system • Bulk delivery (KAT) | | | | | | | | | | | | | |

**City of Knoxville
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| AUTOMOTIVE GASOLINE ENGINE OIL REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|---|--|---------------------------------|
| 8.7 | <p>Referenced Documents: ASTM D 2270 Viscosity Index ASTM D 5293 Viscosity by Cold Cranking Simulator ASTM D 4683 Viscosity at High Shear Rate and High Temperature ASTM D 2896 Total Base Number (TBN) ASTM D 5158 Sulfur, Phosphorous/Zinc Content ASTM D 874 Sulfated Ash Content FTM 203C Stable Pour Point ASTM D 3945 Shear Stability Index ASTM D 92 Flash Point API Service Classification: SM and SN for gasoline engines API: Resource and Energy Conserving ILSAC: GF-5, 4, 3 GM: Dexos I License 0W-20, 5W-20, 5W-30, 6094M Ford: WSS M2C930/945-A (5W-20), M2C929/946-A (5W-30) Chrysler: MS-6395S</p> | |
| 8.8 | <p>Gasoline Engine Oil Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Engine oil testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration • Oil Additives • Oil Condition • Contamination Tests • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | |
| 8.9 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical oil analysis data reports for individual City vehicles on the oil analysis company's website and make that information available to City or KAT Fleet Management in pdf file format for the life of the vehicle.</p> | |
| 8.10 | <p>Oil Analysis Requirements: Successful Bidder shall supply oil analysis service and analyze samples if requested on every oil change on all equipment.</p> | |
| 8.11 | <p>Certificate of Analysis Requirement: Successful bidder may be asked to provide a certificate of oil analysis BEFORE product is scheduled to be delivered to any City or KAT location.</p> | |

**City of Knoxville
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AUTOMOTIVE GASOLINE ENGINE OIL REQUIREMENTS (con't)

| | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------------------------------|-----------|-------|-----------------------------|------|------|--|---|---------------|-------------------------------------|----|-----|--|-----------------|------------------|---------------------------------|---------|-----|----------------------------|---------------------------|-------|-----------------------|--------|--------|--|
| 8.12 | <p>Gasoline Engine Oil Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">SAE GRADE</th> <th style="width: 30%;">5W20/5W30</th> <th style="width: 30%;">10W30</th> </tr> </thead> <tbody> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>165+</td> <td>152+</td> </tr> <tr> <td>ASTM D 5293 Viscosity by Cold Cranking Simulator</td> <td>5W20: 4900 cP -30°C, 5W30: 5100 cP -30°C</td> <td>6740 cP -20°C</td> </tr> <tr> <td>ASTM D 2896 Total Base Number (TBN)</td> <td>6+</td> <td>13+</td> </tr> <tr> <td>ASTM D 5158 Sulfur, Phosphorous/Zinc Content</td> <td>sulfur: 0.5 max</td> <td>phosp: <0.14%</td> </tr> <tr> <td>ASTM D 874 Sulfated Ash Content</td> <td><0.80%,</td> <td><1%</td> </tr> <tr> <td>FTM 203C Stable Pour Point</td> <td>5W20:-54°F 5W30: -49°F</td> <td>-40°F</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>400°F+</td> <td>449°F+</td> </tr> </tbody> </table> | SAE GRADE | 5W20/5W30 | 10W30 | ASTM D 2270 Viscosity Index | 165+ | 152+ | ASTM D 5293 Viscosity by Cold Cranking Simulator | 5W20: 4900 cP -30°C, 5W30: 5100 cP -30°C | 6740 cP -20°C | ASTM D 2896 Total Base Number (TBN) | 6+ | 13+ | ASTM D 5158 Sulfur, Phosphorous/Zinc Content | sulfur: 0.5 max | phosp: <0.14% | ASTM D 874 Sulfated Ash Content | <0.80%, | <1% | FTM 203C Stable Pour Point | 5W20:-54°F 5W30: -49°F | -40°F | ASTM D 92 Flash Point | 400°F+ | 449°F+ | |
| SAE GRADE | 5W20/5W30 | 10W30 | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | 165+ | 152+ | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 5293 Viscosity by Cold Cranking Simulator | 5W20: 4900 cP -30°C, 5W30: 5100 cP -30°C | 6740 cP -20°C | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 2896 Total Base Number (TBN) | 6+ | 13+ | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 5158 Sulfur, Phosphorous/Zinc Content | sulfur: 0.5 max | phosp: <0.14% | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 874 Sulfated Ash Content | <0.80%, | <1% | | | | | | | | | | | | | | | | | | | | | | | | |
| FTM 203C Stable Pour Point | 5W20:-54°F 5W30: -49°F | -40°F | | | | | | | | | | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | 400°F+ | 449°F+ | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.13 | <p>Engine Maintenance with A System Purge: The bidder shall make available an engine System Purge available to clean engine of dirt, carbon, gum, and varnish deposits.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.14 | <p>OEM Requirements: The engine oil shall meet the following OEM performance specifications:</p> <ul style="list-style-type: none"> • API Service Classification: SM and SN for gasoline engines, Resource and Energy Conserving • ILSAC: GF-5, 4, 3 • GM: Dexos 1 License (0W20, 5W20, 5W30), 6094M • Ford: WSS M2C930/945-A (5W-20), M2C929/946-A (5W-30) • Chrysler: MS-6395S | | | | | | | | | | | | | | | | | | | | | | | | | |

**City of Knoxville
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| 9. SYNTHETIC UNIVERSAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS | BIDDER RESPONSE YES or NO | | | | | | | | | | |
|--|------------------------------|------------|---------------------|-------------------|----------------------|------------------------|---------------------------|---------------------|------------------------|--|--|
| <p>9.1 Standards: This standard is intended to specify the requirements necessary for ensuring proper engine maintenance and will be considered the mitigating factor in the selection and procurement process of extended drain performance synthetic universal automatic transmission fluid and accompanying product and service contributions. It shall be used for all transmission applications for protection against deposit formation, breakdown, and parts wear. The product must contain all of the following ingredients:</p> <table border="0"> <tr> <td>Synthetic Base Oil</td> <td>Detergents</td> </tr> <tr> <td>Anti-Wear Additives</td> <td>Friction Reducers</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Pour Point Depressants</td> </tr> <tr> <td>Viscosity Index Improvers</td> <td>Anti-Foam Additives</td> </tr> <tr> <td>Oil Soluble Molybdenum</td> <td></td> </tr> </table> | Synthetic Base Oil | Detergents | Anti-Wear Additives | Friction Reducers | Oxidation Inhibitors | Pour Point Depressants | Viscosity Index Improvers | Anti-Foam Additives | Oil Soluble Molybdenum | | |
| Synthetic Base Oil | Detergents | | | | | | | | | | |
| Anti-Wear Additives | Friction Reducers | | | | | | | | | | |
| Oxidation Inhibitors | Pour Point Depressants | | | | | | | | | | |
| Viscosity Index Improvers | Anti-Foam Additives | | | | | | | | | | |
| Oil Soluble Molybdenum | | | | | | | | | | | |
| <p>9.2 Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid.</p> | | | | | | | | | | | |
| <p>9.3 Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote <u>**note – each tote delivered must be a NEW, unused tote with quick change cam lock system</u> | | | | | | | | | | | |
| <p>9.4 Referenced Documents: ASTM D 445 Kinematic Viscosity ASTM DD2270 Viscosity Index ASTM D 5293 Viscosity by Cold Cranking Simulator FTM 203C Stable Pour Point ASTM D 92 Flash Point Allison TES 389, C-4 ATF 3403M115 AudiIVW G-052-025-A2, G-052-162-A1, G-055-005-A2, G-055-162, G-060-162-A2 BMW LT71141, LA2634, M-1375.4 fluids Ford MERC, Ford FNR5, Ford MERC V, Ford MERC SP, Ford MERC LV GM 9986195, GM OEX II, III and VI Honda/Acura ATF-Z, DW-I (except in CVTs) Hyundai SP-II, SP-III, SP-IV, and SPH-IV JWS3309 KIA SP-II and SP-III Fluids, KIA Red I MAN 339 Type F Mazda M-V Mercedes Benz MB236.1, MB236.6, MB236.7, MB236.9, MB236.10,</p> | | | | | | | | | | | |

**City of Knoxville
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| | | | | | | | | | | | | | | | | | | |
|---|--|-------------------|---|----------------------------|--|--------------------|-------------|------------------------|--|--------------------|------------------------|---|--|-----------------------------------|----------------------|------------------------------|----------------------|--|
| | <p>Mercedes Benz NAG-I MOPAR AS68RC ATF Miscellaneous OEMs - M1375.4 Mitsubishi Diamond SP-II and SP-111 Nissan Matic-O, Matic-J, Matic-K, and Matic-S Saab 93 165 147 Subaru ATF, Subaru ATF-HP Toyota / Lexus Type T, T-III and T-IV, Toyota WS (except Hybrid vehicles) Voith H55.6336.33 (GI363), H55.6335.33 (G607) Volvo 1161521 and 1161540, and STD 1273.41 VW TL52162 ZF TE-ML-14B, 16L, 17C</p> | | | | | | | | | | | | | | | | | |
| <p>9.5</p> | <p>Transmission Fluid Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration • Oil Additives • Oil Condition • Contamination Tests • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | | | | | | | | | | | | | | | | | |
| <p>9.6</p> | <p>Transmission Fluid Minimum Test Data Requirements:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">ASTM D 445</td> <td style="padding: 2px;">@ 40°C: 33 cSt; @ 100°C: 6.4 cSt</td> </tr> <tr> <td style="padding: 2px;">Kinematic Viscosity</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">ASTM D 2270</td> <td style="padding: 2px;">170+</td> </tr> <tr> <td style="padding: 2px;">Viscosity Index</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">ASTM D 5293</td> <td style="padding: 2px;">14,300 cP -40°C</td> </tr> <tr> <td style="padding: 2px;">Viscosity, Cold Cranking Simulator</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">FTM 203C Stable Pour Point</td> <td style="padding: 2px;">-48°C (-54°F)</td> </tr> <tr> <td style="padding: 2px;">ASTM D 92 Flash Point</td> <td style="padding: 2px;">232°C (450°F)</td> </tr> </table> | ASTM D 445 | @ 40°C: 33 cSt; @ 100°C: 6.4 cSt | Kinematic Viscosity | | ASTM D 2270 | 170+ | Viscosity Index | | ASTM D 5293 | 14,300 cP -40°C | Viscosity, Cold Cranking Simulator | | FTM 203C Stable Pour Point | -48°C (-54°F) | ASTM D 92 Flash Point | 232°C (450°F) | |
| ASTM D 445 | @ 40°C: 33 cSt; @ 100°C: 6.4 cSt | | | | | | | | | | | | | | | | | |
| Kinematic Viscosity | | | | | | | | | | | | | | | | | | |
| ASTM D 2270 | 170+ | | | | | | | | | | | | | | | | | |
| Viscosity Index | | | | | | | | | | | | | | | | | | |
| ASTM D 5293 | 14,300 cP -40°C | | | | | | | | | | | | | | | | | |
| Viscosity, Cold Cranking Simulator | | | | | | | | | | | | | | | | | | |
| FTM 203C Stable Pour Point | -48°C (-54°F) | | | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | 232°C (450°F) | | | | | | | | | | | | | | | | | |
| <p>9.7</p> | <p>TES 295 Requirement: Transmission Fluids shall meet TES 295 requirements.</p> | | | | | | | | | | | | | | | | | |
| <p>9.8</p> | <p>Viscosity Requirements Must have available OEM required 5W-20 viscosity grade</p> | | | | | | | | | | | | | | | | | |

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| SYNTHETIC UNIVERSAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO |
|---|--|---------------------------|
| 9.09 | Historical Vehicle Record Maintenance: Successful bidder shall maintain historical transmission fluid analysis data reports for individual City or KAT vehicles on the analysis company's website and make that information available to City or KAT Fleet Management in pdf file format for the life of the vehicle. | |
| 9.10 | OEM Requirements: The synthetic universal automatic transmission fluid shall meet the following OEM specifications: <ul style="list-style-type: none"> • Allison TES 389, C-4 • ATF3403MIS • Audi/VW G-052-025-A2, G-052-162-A1, G-055-005-A2, G-055-162, G-060-162-A2 • BMW LT71141, LA2634, M-1375.4 fluids • Ford MERC, Ford FNRS, Ford MERC V, Ford MERC SP, Ford MERC LV • CM 9986195, GM DEX II, III and VI • Honda/Acura ATF-Z, DW-1 (except in CVTs) • Hyundai SP-II, SP-III, SP-IV, and SPH-IV • JWS3309 • KIA SP-II and SP-III Fluids, KIA Red I • MAN 339 Type F • Mazda M-V • Mercedes Benz MB236.1 , MB236.6, MB236.7, MB236.9, MB236.10, Mercedes Benz NAG-I • MOPAR AS68RC ATF • Miscellaneous OEMs - M 1375.4 • Mitsubishi Diamond SP-II and SP-III • Nissan Matic-D, Matic-J, Matic-K, and Matic-S • Saab 93 165 147 • Subaru ATF, Subaru ATF-HP • Toyota / Lexus Type T, T-III and T-IV, Toyota WS (except Hybrid vehicles) • Voith H55.6336.33 (G I 363), H55.6335.33 (G607) • Volvo 1161521 and 1161540, and STD 1273.41 • VWTL52162 • ZF TE-ML-14B, 16L, 17C | |

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Oil and Lubricants**

| 10. SYNTHETIC COMMERCIAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS | BIDDER RESPONSE YES or NO | | | | | | | | | | |
|--|-------------------------------|------------|---------------------|-------------------|----------------------|-------------------------------|------------------------|---------------------------|---------------------|------------------------|--|
| <p>10.1 Standards: This standard is intended to specify the requirements necessary for ensuring proper engine maintenance and will be considered the mitigating factor in the selection and procurement process of extended drain performance synthetic commercial automatic transmission fluid and accompanying product and service contributions. It shall be used for all transmission applications for protection against deposit formation, breakdown, and parts wear. The product must contain all of the following ingredients:</p> <table border="0" style="width: 100%;"> <tr> <td>Synthetic Base Oil</td> <td>Detergents</td> </tr> <tr> <td>Anti-Wear Additives</td> <td>Friction Reducers</td> </tr> <tr> <td>Oxidation Inhibitors</td> <td>Rust and Corrosion Inhibitors</td> </tr> <tr> <td>Pour Point Depressants</td> <td>Viscosity Index Improvers</td> </tr> <tr> <td>Anti-Foam Additives</td> <td>Oil Soluble Molybdenum</td> </tr> </table> | Synthetic Base Oil | Detergents | Anti-Wear Additives | Friction Reducers | Oxidation Inhibitors | Rust and Corrosion Inhibitors | Pour Point Depressants | Viscosity Index Improvers | Anti-Foam Additives | Oil Soluble Molybdenum | |
| Synthetic Base Oil | Detergents | | | | | | | | | | |
| Anti-Wear Additives | Friction Reducers | | | | | | | | | | |
| Oxidation Inhibitors | Rust and Corrosion Inhibitors | | | | | | | | | | |
| Pour Point Depressants | Viscosity Index Improvers | | | | | | | | | | |
| Anti-Foam Additives | Oil Soluble Molybdenum | | | | | | | | | | |
| <p>10.2 Product Data Sheet Requirements: Bidder shall provide current product data sheets to review specifications and typical test data with the bid.</p> | | | | | | | | | | | |
| <p>10.3 Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote <u>**note – each tote delivered must be a NEW, unused tote with quick change cam lock system</u> | | | | | | | | | | | |
| <p>10.4 Referenced Documents: ASTM D 445 Kinematic Viscosity ASTM DD2270 Viscosity Index ASTM D 5293 Viscosity by Cold Cranking Simulator FTM 203C Stable Pour Point ASTM D 92 Flash Point ASTM D 4172 Four Ball Wear Test ASTM D 130 Copper Corrosion Allison C-4, TES-295, TES-389 GM DEXRON®IIIH FORD MERCON®V JASO I-A MAN 339 Type V-I , MAN 339 Type V-2 MB 236.1, 236.2, 236.5, 236.6, 236.7, 236.9 VOITH 55.6335,55.6336 VOLVO 97340, 97341 ZF TE-ML 04D,05L,09, 11B, 14B, 14C, 16L, 16M</p> | | | | | | | | | | | |

**City of Knoxville
Fleet Services
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| SYNTHETIC COMMERCIAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO | | | | | | | | | | | | | | |
|--|--|---------------------------------------|------------------------------------|------------------------------------|------|---|----------------|-----------------------------------|---------------|------------------------------|---------------|--|--------|------------------------------------|----|--|
| 10.5 | <p>Transmission Fluid Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration • Oil Additives • Oil Condition • Contamination Tests • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | | | | | | | | | | | | | | | |
| 10.6 | <p>Synthetic Commercial Transmission Fluid Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 30%;">ASTM D 445 Kinematic Viscosity</td> <td style="width: 70%;">@ 40°C: 36.6 cSt; @ 100°C: 7.5 cSt</td> </tr> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>170+</td> </tr> <tr> <td>ASTM D 5293 Viscosity, Cold Cranking Simulator</td> <td>8,475 cP -40°C</td> </tr> <tr> <td>FTM 203C Stable Pour Point</td> <td>-54°C (-65°F)</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>226°C (439°F)</td> </tr> <tr> <td>ASTM D 4172 Four Ball Wear Test</td> <td>0.44mm</td> </tr> <tr> <td>ASTM D 130 Copper Corrosion</td> <td>1b</td> </tr> </tbody> </table> | ASTM D 445 Kinematic Viscosity | @ 40°C: 36.6 cSt; @ 100°C: 7.5 cSt | ASTM D 2270 Viscosity Index | 170+ | ASTM D 5293 Viscosity, Cold Cranking Simulator | 8,475 cP -40°C | FTM 203C Stable Pour Point | -54°C (-65°F) | ASTM D 92 Flash Point | 226°C (439°F) | ASTM D 4172 Four Ball Wear Test | 0.44mm | ASTM D 130 Copper Corrosion | 1b | |
| ASTM D 445 Kinematic Viscosity | @ 40°C: 36.6 cSt; @ 100°C: 7.5 cSt | | | | | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | 170+ | | | | | | | | | | | | | | | |
| ASTM D 5293 Viscosity, Cold Cranking Simulator | 8,475 cP -40°C | | | | | | | | | | | | | | | |
| FTM 203C Stable Pour Point | -54°C (-65°F) | | | | | | | | | | | | | | | |
| ASTM D 92 Flash Point | 226°C (439°F) | | | | | | | | | | | | | | | |
| ASTM D 4172 Four Ball Wear Test | 0.44mm | | | | | | | | | | | | | | | |
| ASTM D 130 Copper Corrosion | 1b | | | | | | | | | | | | | | | |
| 10.7 | <p>Viscosity Requirements Must have available OEM required 5W-20 viscosity grade</p> | | | | | | | | | | | | | | | |

**City of Knoxville
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Oil and Lubricants**

| COMMERCIAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS (con't) | | | BIDDER RESPONSE YES or NO |
|---|--|--|---------------------------------|
| 11.3 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote **note – each tote delivered must be a NEW, unused tote with quick change cam lock system | | |
| 11.4 | <p>Referenced Documents:</p> <p>ASTM D445 Kinematic Viscosity ASTM D 2270 Viscosity Index ASTM D 5293 Viscosity by Cold Cranking Simulator FTM 203C Stable Pour Point ASTM D92 Flash Point Allison C-4 Ford MERC, MERC VI, MERC LV, Ford M2C138-CJ, M2C166H GM 9986195, GM DEX II, III and VI Caterpillar TO-2 Sperry, Vickers, Denison, Sunstrand Hydraulic Pumps</p> | | |
| 11.5 | <p>Transmission Fluid Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration • Oil Additives • Oil Condition • Contamination Tests • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | | |

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| COMMERCIAL AUTOMATIC TRANSMISSION FLUID REQUIREMENTS (con't) | | BIDDER RESPONSE YES or NO | | | | | | | | | | |
|---|---|---------------------------------------|------------------------------------|------------------------------------|------|---|-----------------------------------|-----------------------------------|---------------|------------------------------|---------------|--|
| 11.6 | <p>Commercial Transmission Fluid Minimum Test Data Requirements:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">ASTM D 445 Kinematic Viscosity</td> <td style="width: 50%;">@ 40°C: 34.5 cSt; @ 100°C: 7.5 cSt</td> </tr> <tr> <td>ASTM D 2270 Viscosity Index</td> <td>170+</td> </tr> <tr> <td>ASTM D 5293 Viscosity, Cold Cranking Simulator</td> <td>17,500 cP -40°C 1,350 cP -20°C</td> </tr> <tr> <td>FTM 203C Stable Pour Point</td> <td>-51°C (-60°F)</td> </tr> <tr> <td>ASTM D 92 Flash Point</td> <td>185°C (365°F)</td> </tr> </table> | ASTM D 445 Kinematic Viscosity | @ 40°C: 34.5 cSt; @ 100°C: 7.5 cSt | ASTM D 2270 Viscosity Index | 170+ | ASTM D 5293 Viscosity, Cold Cranking Simulator | 17,500 cP -40°C 1,350 cP -20°C | FTM 203C Stable Pour Point | -51°C (-60°F) | ASTM D 92 Flash Point | 185°C (365°F) | |
| ASTM D 445 Kinematic Viscosity | @ 40°C: 34.5 cSt; @ 100°C: 7.5 cSt | | | | | | | | | | | |
| ASTM D 2270 Viscosity Index | 170+ | | | | | | | | | | | |
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| FTM 203C Stable Pour Point | -51°C (-60°F) | | | | | | | | | | | |
| ASTM D 92 Flash Point | 185°C (365°F) | | | | | | | | | | | |
| 11.7 | <p>Viscosity Requirements Must have available OEM required 5W-20 viscosity grade</p> | | | | | | | | | | | |
| 11.8 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical transmission fluid analysis data reports for individual City or KAT vehicles on the analysis company's website and make that information available to City or KAT Fleet Management in pdf file format for the life of the vehicle.</p> | | | | | | | | | | | |
| 11.9 | <p>Fluid Analysis Requirements: Successful Bidder shall supply fluid analysis service and analyze samples if requested.</p> | | | | | | | | | | | |
| 11.10 | <p>OEM Requirements: The transmission fluid shall meet the following OEM specifications: Allison C-4 Ford MERC, MERC VI, MERC LV, Ford M2C138-CJ, M2C166H GM 9986195, GM DEX II, III and VI Caterpillar TO-2 Sperry, Vickers, Denison, Sunstrand Hydraulic Pumps</p> | | | | | | | | | | | |

12. ALLISON APPROVED TRANSMISSION FLUID

BIDDER
RESPONSE
YES or NO

12.1

Requirements

Transmission fluid shall be Castrol TranSynd Transmission Fluid. It is a premium, synthetic, universal powershift and automatic transmission fluid and is engineered to remain stable under the most severe conditions.

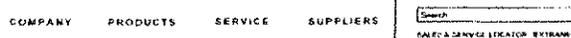
12.2

Test Data Requirements

Available on the Allison website www.allisontransmission.com. Product shall be found under "Approved Product Listing" and is also listed below for convenience.

Allison Transmission

Page 1 of 2



Allison Transmission Service Fluids - TES 295™ Approved Fluids

TES 295™ Approved Fluids

When seeking a fluid for your Allison transmission that is TES 295™ approved do not fall to the claims of some companies that claim that their product is TES 295™ approved. The statements like: "Our products "are designed to meet", "are equivalent to", "meet or exceed", etc. When determining whether or not a fluid is TES 295™ approved, look and/or ask for one of two things:

- Table Of Contents
- FLUIDS
- Engineering Specifications for Fluids
- TES 295™ Approved Fluids
- TES 465 Approved Fluids
- TranSynd™ KD for Off Highway
- Oil Analysis
- OEM Installation and Service Support Materials
- Schedule One TES 295 Fluids
- TES 295™ Fluids Product Information Links
- C 4 Approved Fluids
- TES 430 Fluids

- The Allison TES 295™ approval number
- The Allison Approved logo

Approved Product Listing as of 3/9/2012

| TES 295 Approval Number | Approved Manufacturer | Product Brandname |
|-------------------------|---|----------------------------|
| AN-015001 | Castrol Heavy Duty Lubricants | TranSynd |
| AN-031002 | BP Lubricants | Autran Syn 295 |
| AN-031003 | Cognis Corporation | Engard 295S |
| AN-031004 | International Truck & Engine Company | Flentec Synthetic ATF |
| AN-051005 | ExxonMobil Lubricants and Petroleum Specialties Company | Mobil Delvac Synthetic ATF |
| AN-071006 | John Deere & Company | HD SynTran |
| AN-1010007 | Volvo Trucks North America | Hulldog Synthetic ATF |



<http://www.allisontransmission.com/service/autoup/172/viewpage.jsp?ThisPage=3&>

3/9/2012

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Fleet Services
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| ALLISON APPROVED TRANSMISSION FLUID (con't) | | BIDDER RESPONSE YES or NO |
|---|---|---------------------------------|
| 12.3 | <p>Transmission Fluid Testing: To ensure that the supplied product contains the additives package and that said additives are in the necessary concentrations to provide the required benefits, all proposed products must meet the following test criteria and performance requirements. All of the tests described below must be carried out and the values must fall within the prescribed limits. Testing will be carried out at no additional charge by the supplier when requested by the City and KAT to establish the following:</p> <ul style="list-style-type: none"> • Wear Metal Concentration: Copper, Iron, Chrome, Lead, Aluminum, Silicon, • Molybdenum, Sodium, Magnesium, Tin • Additives: Zinc, Potassium, Phosphorus, Calcium • Condition: Soot, Oxidation, Nitration, Sulfur Products, Oil Viscosity, Total Acid Number, Total Base Number • Contamination Tests: Water, Fuel, Antifreeze • Large Particle Detection <p>Test results will be made available along with written maintenance recommendations from the third-party laboratory.</p> | |
| 12.4 | <p>Historical Vehicle Record Maintenance: Successful bidder shall maintain historical transmission fluid analysis data reports for individual City or KAT vehicles on the analysis company's website and make that information available to City or KAT Fleet Management in pdf file format for the life of the vehicle.</p> | |
| 12.5 | <p>Packaging Requirements: (all containers must be labeled with correct SDS Labels in DOT approved packaging)</p> <ul style="list-style-type: none"> • 1 gallon container • 55 gallon drum • 330 gallon tote <u>**note – each tote delivered must be a NEW, unused tote with quick change cam lock system</u> | |

Additional notes to Motor Oil and Lubricant Document

Approximate quantities of product that were used at all three shops in the past year.

Engine oil in bulk: 17000 gallons

Grease in tubes: 600 ea

Grease in bulk: 600 gallons

Transmission fluid/trans synd: 700 gallons

Hydraulic fluid in one gallon containers: 1500 ea

Hydraulic fluid in bulk: 6000 gallons

85W140 gear lubricant: 1000 gallons

Please note that these quantities are estimated. The City plans to purchase most of the products previously listed on the bid sheets in the 330 gallon totes.